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THE BENT BACK OF SOLDIERS.

[WITH SPECIAL PLATE.]

BY

LIEUT.-COLONEL A. F. HURST, R.A.M.C.,

PHYSICIAN AND NEUROLOGIST TO GUY'S HOSPITAL, AND OFFICER IN CHARGE OF SEALE HAYNE MILITARY HOSPITAL, NEWTON ABBOT.

THE soldier, walking slowly and painfully with the aid of two sticks, bending far forward, his arms and legs often shaking with the effort, for all the world like the stage octogenarian, is becoming a more and more common sight. Though a large literature has grown up around him in France, where each author has amused himself by inventing a new name for him, such as *plicature vertébrale*, *campto-cormie* (Souques and Mdlle. Rosanoff-Saloff [1]), *campto-rachis* (Laignel-Lavastine and Courbon [2]), and *spondylose antalgique* (Sicard [3]), it is a curious fact that he has not yet formed the subject of a paper in English. This might be regarded as a matter for congratulation were it not for the fact that the true nature of the condition is only rarely recognized, with the result that many men who should be cured in a few minutes with psychotherapy drift from one hospital to another, receive treatment with electrical appliances of different kinds, spend many weeks undergoing hydrotherapy at various spas, and end by being invalided from the army as totally incapacitated, and convinced from the failure of treatment whilst in the army that treatment after their discharge will be equally unsuccessful. Considerable experience of the condition since I saw my first case at Lemnos in November, 1915, has convinced me that the bent back of soldiers, however variable its etiology, is constant in its pathology, being always hysterical in nature, and consequently always curable by psychotherapy.

Etiology.

The most common cause is a blow in the back, either due to the explosion of a shell hurling a man against the side of a trench or causing the parapet to fall on him, or to some accident which might equally well have occurred in civil life, such as being jammed against a wall by a lorry. Occasionally an actual wound is present, but this is always superficial, the spine itself having escaped. A history of "muscular rheumatism" is obtained almost as frequently, pain in the back having followed exposure to cold and damp, generally in the trenches, but occasionally at the base or even in English camps. In one case the condition followed the injection of antitetanic serum under the skin of the abdomen in a patient with localized tetanus, which never spread beyond the right arm, and in another it was first observed after an attack of malaria, in which the patient had been semicomatose for a week. Lastly, one patient developed it after an operation for acute appendicitis. Several of our patients appeared to be predisposed by having always walked with a slight stoop or by having had previous attacks of lumbago. The father of the boy I saw at Lemnos was a "martyr to rheumatism" and walked with a bent back, but this probably predisposed more by the mental association than by any inherited physical condition.

Pathogenesis.

The one common factor in these various causes is pain, generally in the back, but occasionally in the abdomen (as in the case of tetanus and that of appendicitis), which is relieved by bending far forward. The patient finds he can only stand and walk with some degree of comfort in this position, and at first he generally lies in bed curled on his side. After a time the pain caused by the blow on the back, the rheumatism or other exciting cause, diminishes or disappears. The patient can now often rest comfortably lying flat on his back, but he continues to stand or walk in the same bent position. He does not realize that this posture was originally adopted voluntarily in order to relieve his pain, and he regards both the posture and the pain as direct and independent results of the injury or disease which they followed. The pain has gone, but the posture, adopted with the object of relieving it, remains. Unfortunately the medical officer frequently makes the same mistake as the patient, and prescribes treatment with kataphoresis, diathermy, radiant heat, whirlpool baths, massage, or other elaborate method in an electro- or hydro-therapeutic institute, with the result that the notion of some serious disease is still further impressed upon the patient's mind, the original auto-suggestion being thus reinforced by hetero-suggestion. How little benefit follows such treatment unless it is given as a form of suggestion is proved by the fact that the spa physicians with whom I have discussed the question tell me that they do not know of a single soldier with a bent back who has been cured as a result of spa treatment.

Numerous investigations with the *x* rays have shown that there is no organic spinal lesion, even in those cases which follow a severe blow on the back. Unfortunately, however, the spine is not easy to skiagraph satisfactorily, and an indifferent plate requires exceptionally skilful interpretation. I have seen several cases, in which the radiographer has reported a "doubtful" spinal deformity, fracture or other pathological condition, which further examination and the course of the disease have proved to be non-existent. But the patient often sees or hears the report, with the result that the difficulties in the way of successful psychotherapy are much increased.

The bruising which results from an injury and the obscure pathological process, whether a nodular fibrositis or interstitial myositis, which is the basis of so-called muscular rheumatism, myalgia, and lumbago, are true organic lesions, but they quickly disappear, and the condition which persists for weeks or months afterwards is either entirely hysterical, or in rare cases is hysterical with a small but more or less permanent organic element in addition.

It is true that the patient generally complains of more or less pain in his back, but though very prone to exaggerate his symptoms, he is generally ready to admit that the pain is less severe than it was at the onset of his illness. Whatever part of it is genuine is probably the result of constantly stretching the small muscles and ligaments of the spine, which in normal individuals is bent for a few minutes at the most instead of for the greater part of each day. That this is true is shown by the immediate improvement or even disappearance of the pain when the patient is taught to assume a correct attitude.

Symptoms and Diagnosis.

The appearance of the patient is so characteristic that the diagnosis is at once obvious, as there is no organic condition which in any way resembles it except spondylitis deformans, which, however, never affects young men. Moreover, the position assumed in the latter is the same whether the patient lies down or stands, whereas the bent back of soldiers almost invariably disappears entirely, or almost entirely, on lying down. Other diseases of the vertebra are excluded by the absence of tenderness over the spine though the muscles may be sensitive to pressure. French writers have described in detail the folds which are observed in the skin of the abdomen and back of the neck, but these do not differ in any way from those which develop when a normal individual acts the part of a very old man—bending forward, and throwing his head back so that he can look straight ahead.

In the large majority of cases uncomplicated kyphosis is present, but we have also seen cases of lordosis, lateral curvature, and of combined kyphosis and lateral curvature of similar origin. The following case, under the care of Captain G. McGregor, was the best example of the latter condition which I have seen.

Combined Antero-posterior and Lateral Curvature of Twenty Months' Duration Cured by Re-education in an Hour and a Half.

Pte. D., a New Zealander, aged 30, with over two years' service, was digging a trench in April, 1917, when he "felt something give" in his back. He has had pain there and his back has been bent ever since. He carried on until June, 1917, when he was partly buried by a shell. He was sent to the base, where he remained until July, when he was transferred to England for discharge. Captain H. A. Davies, recognizing the hysterical nature of his condition, sent him from the New Zealand Discharge Dépôt to the Seale Hayne Hospital. On admission there was a lateral curvature of the spine to the left in the dorsal region and to the right in the lumbar region, with corresponding prominence of the left shoulder and right hip; very marked lordosis was also present. He swayed violently backwards and forwards when standing with his feet together. The faulty position disappeared on lying down and was easily corrected by manipulation on standing. After an hour and a half's re-education under Captain McGregor he had

no further difficulty in keeping his spine in a position free from curvature, both when standing and walking, and was discharged from hospital a fortnight later.

In the following case, under Captain C. H. Ripman, in which recovery followed treatment by persuasion, the kyphosis was associated with curvature in a horizontal plane, the shoulders being thrown far forward, an appearance of severe pigeon-breast resulting.

Hysterical Kyphosis Associated with Curvature in a Horizontal Plane.

Pte. B. was wounded on March 21st, 1918. On admission in August he had a superficial scar three inches long, running diagonally across his back opposite the third dorsal vertebra. He showed very marked kyphosis, which produced two deep horizontal folds across his epigastrium, below which the abdomen was round and prominent. His chest was also hollow from side to side, with very marked prominence of the points of his shoulders. He breathed very badly, with no abdominal movement and very little expansion of the lower part of his thorax. He looked so pigeon-breasted that the deformity was considered by some observers to be organic and due to adenoids, though he himself said he was absolutely straight until he was wounded. Unlike the majority of cases, the curvature did not disappear on lying down. But with persuasion his body was gradually straightened out, his shoulders being pressed back until both the kyphosis and the side to side curvature, together with the hollowing of his chest, had disappeared. After prolonged persuasion he was able to move freely, and the depression of his epigastrium and the prominence of his abdomen with the horizontal furrows across his epigastrium disappeared. Three weeks later, being quite fit, he was sent back to duty.

In the following case, under Lieutenant S. H. Wilkinson, lordosis instead of kyphosis followed burial. The patient's posture and gait closely simulated that of pseudo-hypertrophic paralysis.

A Case of Pseudo-pseudo-hypertrophic Paralysis Cured by Persuasion after lasting for Ten Months.

Rfm. P., aged 20, had had six months' active service in France when he was buried by a shell in September, 1917. He was not dug out until four hours had elapsed. He felt none the worse for it, except for a slight pain in the back, but he was sent to hospital the following day with a diagnosis of trench feet, his feet being very blue and cold. He was kept in bed for a month and then transferred as a cot case to a hospital in England, where he remained for two months. He was kept in bed the whole time, the only treatment given being for his feet. He was then sent to an auxiliary hospital. At the end of a week he was allowed out of bed for the first time, when he found that he could only walk with difficulty. In spite of treatment with electricity and massage, his gait became more and more difficult. He was transferred to Seale Hayne Military Hospital on July 15th, 1918. On admission he presented many of the characteristics of pseudo-hypertrophic paralysis. His gait was slightly waddling, very marked lordosis was present; he was unable to bend forward, sit or lie down without help, and if he lay flat on his back he was unable to get up. As there was no atrophy of any of his muscles, and no family history of paralysis, it was recognized that the condition was hysterical. After continuous treatment for two hours by persuasion he had greatly improved, and with further persuasion during the following three days he completely recovered.

In some cases, especially when the exciting cause is a blow on the back, the gait is stiff, each step requiring a great effort, and a generalized tremor may be present; the patient sweats excessively, and has an anxious and haggard expression.

Treatment.

All forms of treatment except psychotherapy are useless. Thus electricity, unless employed as a means of suggestion, massage, and fixation in a plaster jacket after straightening the spine under an anaesthetic, as recommended by certain French writers, do no good, and may do harm, by fixing the idea of disease more firmly in the patient's head.

Any form of psychotherapy is likely to be efficacious. I hypnotized my first patient, a 19-year-old soldier, whose back had been bent for two months after rheumatism contracted at Gallipoli. He walked quite erect whilst hypnotized, and I woke him up whilst he was still walking. Though it had been arranged for him to embark for England the next day, he asked to be allowed to stay at Lemnos, as he was now cured, and a week later he returned to the peninsula at his own request. In spite of this success I have not again employed hypnotism in such cases, as I prefer to use simpler methods, which are just as effective. Until recently we had never failed to obtain a very rapid cure by means of persuasion and re-education, in most cases very rapidly. We explain to the patient how the position he assumes on standing and walking is simply a bad habit, contracted when the originally severe pain in his back could only be relieved by bending forward. He is made to realize that the fact that he can lie down with his back straight proves that there is nothing serious the matter with his spine, and that he would in fact lose such pain as he has on standing, if he were to relax his muscles and stand erect. He stands with his back to a wall with his heels touching it, and his shoulders are then gently but firmly and persistently pushed back till they also touch the wall. He is told that the pain he feels whilst this is being done will disappear directly he is erect, and the less resistance he offers the quicker he will be cured. In most cases relaxation rapidly follows, and in a few minutes he finds he can stand erect without support. He is then taught to walk in the same position, and recovery is complete. I cured a discharged soldier in this way in a quarter of an hour without admitting him to hospital; he was to return to his home in Australia a few days later, and the condition had existed for eleven months in spite of all kinds of treatment. The following is the only case in which simple persuasion and re-education failed, but a cure resulted from treatment with a back-board.

Hysterical Kyphosis of Five Months' Duration Cured by Back-board.

A man, aged 31, who had always stooped slightly and had suffered from lumbago for twelve years, developed a very severe degree of kyphosis (Special plate, Fig. A) as a result of falling out of a buggy whilst home on leave. He was treated by massage, blistering, and immobilization for two and a half months, and then by thermal baths and massage for two months at Bath without any benefit. After this he was admitted to Seale Hayne Hospital, but resisted our ordinary methods of treatment by persuasion and re education for five weeks. He refused to believe that his condition was curable, and disciplinary measures, such as the strictest isolation without receiving or sending letters, with nothing to read and nothing to smoke, and a limited and monotonous diet, only rendered him more stubborn and resistant to treatment. I therefore had a board made with a footpiece fixed at right angles to its lower end. He lay flat on the board with his feet on the footpiece without difficulty, as he had all along been able to lie down with his spine fully extended. The upper end of the board was then very slowly raised, the lower end resting on the floor (Fig. B). He was encouraged to remain lying on the board with his muscles relaxed and his arms lying loosely by his sides. The upper end of the board was raised higher and higher, until at length the board was perpendicular and the footpiece was resting on the floor. As he did not alter his position in relation to the board, he was now standing quite erect. He was told to walk off the footpiece, which he proceeded to do without bending his back (Fig. C), and he was delighted to find that at last he was cured by an absolute painless method after the complete failure of all previous attempts, many of which had caused him severe pain. There was no relapse, and the cure of his physical condition was immediately followed by a complete change in his mental outlook; instead of being morose, depressed, and disagreeable, he became cheerful, happy, and grateful for all that had been done for him.

The rapidity and painlessness of the cure in this case suggest that the same method should often be adopted for soldiers with bent backs. If it meets with equal success it would not only save the patient needless pain, but would save the medical officer both time and the expenditure of much physical energy in the more resistant cases. After the preliminary explanation has been given to the patient, the duration of treatment would rarely exceed a quarter of an hour.

Bent Back in Civil Life.

The following case, for the description of which I am indebted to Dr. W. Gordon and Mr. E. J. Domville of Exeter, shows that some, at any rate, of the cases of bent back in middle-aged and elderly people, which have hitherto been regarded as due to spondylitis deformans, and consequently as incurable, are really examples of hysterical postures.

Louisa C., aged 49, had been in bed all the winter with her "back bowed," her head bent on her chest, and her arms and legs firmly flexed. She had been unable to use her hands for twelve months. On July 3rd, 1918, she was admitted into the Devon and Exeter Hospital under Dr. Gordon and Mr. Domville. The next day, with gentle persuasion and firm pressure, the legs and arms were straightened, but the head remained flexed on the chest. On the third day the same treatment was applied to the head, and the neck was straightened. The patient then dressed herself and walked about the ward, and began to occupy herself with knitting. By August 12th her condition was still improving; she now helps in laying the table for the other patients, and is always knitting or doing other work, but she still has a tendency to keep her head bent forward, although she raises it well when she has her daily drill.

I understand that similar cases of bent back are not very rare in workmen after accidents, but they have always proved very resistant to treatment. Perhaps the use of the board described in this paper will in the future afford a rapid means of curing civilians as well as soldiers.

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Some Remarks ON THE MORBID ANATOMY AND HISTOLOGY OF RHEUMATOID ARTHRITIS.*

[WITH SPECIAL PLATE.]

BY

T. P. S. STRANGEWAYS,

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(From the Laboratory of the Cambridge Research Hospital.)

THE following is a summary of a report giving a detailed description of the changes found in joints of patients suffering from that form of chronic arthritis at present recognized clinically as rheumatoid arthritis. The report referred to was submitted to the Medical Research Committee, which made a generous grant in aid of the work from the funds at their disposal.

Most of the specimens which furnished the material for the report were obtained during *post mortem* examination of over 2,000 joints of patients suffering from one or the other of the following forms of chronic arthritis—namely, rheumatoid arthritis, osteo-arthritis, chronic gout, or Charcot's disease. I am indebted to a large number of doctors in practice in Great Britain and Ireland for the clinical and pathological material from which this report was prepared, and I wish to express my gratitude to them for allowing me to conduct the necessary *post mortem* examinations. The anatomical and microscopical specimens prepared to demonstrate the various changes in such joints are preserved at the Cambridge Research Hospital, where they are accessible for inspection to any interested. The revised summary here given has been written in the form of categorical statements.

The term "rheumatoid arthritis" as at present used includes several forms of arthritis which are clearly due to different causes, although clinically they may show several points of similarity.

The crippling and deformity associated with rheumatoid arthritis, or what is taken as such, are largely of muscular origin, which may be (*a*) of the nature of an involuntary contraction brought about by pain referred to the joint of the crippled limb; (*b*) due to an involuntary muscular spasm caused by pain on movement of the damaged joint; (*c*) due to actual atrophy and shortening of some of the muscles connected with the diseased joint. This atrophy is usually associated with disuse and long-continued muscular spasm.

In other cases the deformity is due to changes in the joint itself, such as (*a*) distension of the capsule by an excess of synovial fluid; (*b*) dislocation of the bones of the articulation; (*c*) changes in the shape of the articular surfaces owing to formation of new bone or to erosion of the original.

Some joints which clinically appear to be damaged show very little morbid change on *post-mortem* examination, although symptoms of arthritis with crippling deformity have been present for many years.

Cases are observed in which the capsule of the joint has been distended for a long period by an excess of synovial fluid, accompanied by more or less deformity, but in which on *post-mortem* examination no marked changes are discovered. In some examples of this type the fluid ultimately diminishes. Fibrotic changes may then be present in the capsule, and the articular cartilages may have undergone fibrillation or atrophy.

A considerable proportion of the joints show distinct inflammatory changes in the synovial membrane, in the capsule, or in the bones of the articulation; in any joint the articular cartilage may be also involved. These inflammatory lesions may be present in one or all of the above mentioned structures, and be either acute, subacute, or chronic.

In a few cases the processes are obviously of infective origin, and are associated with marked inflammatory changes in the synovial membrane and the formation of thick fleshy villi, and vascular adhesions. Microscopically the inflamed tissues show large collections of inflammatory cells and new capillaries. Erosion of the articular cartilage and bones may also be present.

The changes found in a joint affected with what is termed rheumatoid arthritis are usually of an inflammatory nature, but their severity and extent vary considerably in different cases and in different joints from the same case. The changes may be present in a part only of the articulation.

The inflammatory process may originate either in the synovial membrane, in the capsule, or in the superficial cancellous spaces of the epiphysis, or in all three of these structures.

The inflammatory process, if severe, is associated with proliferation of the connective tissue cells, the development of new blood vessels, the accumulation of leucocytes, and sometimes with the extravasation of red blood corpuscles. The inflammatory tissue may originate in the synovial membrane or in the capsule and invade the articular cartilage and bone, or lead to the formation of inflammatory adhesions in the joint cavity. This inflammatory tissue tends in the course of time to become organized and converted into fibrous tissue and may bring about fibrous ankylosis either between the adjacent surfaces of the capsule or between the cartilage, or even between the bones of the articulation if the original cartilage has been destroyed.

In some cases the arthritis is of a subacute type from the onset and the inflammatory changes, although often progressive, are not so marked. In this type the changes may originate in the synovial membrane (Fig. 1), the capsule or the superficial marrow spaces of the epiphysis, from any of which they may spread to the articular cartilage; the process leads to the formation of fibrosing tissue in the affected areas, and this, when present in the capsule, causes the latter to contract. The movements of the limb are in consequence restricted, and the articular cavity decreased in size. Fibrous adhesions also develop in these joints, and in some cases fibrous, cartilaginous (Fig. 6), or bony ankylosis.

The changes in the superficial marrow spaces lead to resorption or erosion of the osseous trabeculae, which may be associated with the invasion and replacement of the articular cartilage by the inflammatory tissue (Fig. 5).

Other joints show a slowly progressive inflammatory fibrosis of the capsule often associated with degenerative changes in the cartilage and proliferative changes in some of the superficial marrow spaces. In these joints areas of cartilage may be invaded, either superficially from the capsule, or from beneath from the superficial marrow spaces.

The inflammatory reaction of the marrow of the superficial cancellous spaces of the epiphysis may be of an acute, subacute, or chronic type. In any type the connective tissue cells of the marrow proliferate and new blood vessels form. In many specimens the new connective tissue cells are of stellate form. In other specimens the connective tissue cells appear more fibroblastic, especially such as be near the edges of the bone trabeculae, but in all cases these cells show a tendency to form adipose tissue as the inflammatory process subsides. In those cases where the superficial osseous trabeculae are eroded and the zone of calcified cartilage invaded, the connective tissue cells and vessels form a definitely organized fibrotic tissue, the cells of which do not show the same tendency to form adipose tissue.

In no instance has it been possible to demonstrate periarticular changes of an inflammatory nature around the affected joints, and it is doubtul if there is such a condition as periarticular rheumatoid arthritis.

The changes in the cartilage vary considerably in different joints from the same case, and even in the same joint.

The articular cartilage may show signs of atrophy accompanied by modifications in the staining reaction of the matrix.

* Read at a meeting of the Medical Society of London, October 28th, 1918.

The articular cartilage may show proliferation of its cells which results in the formation of cell groups usually surrounded by an unstained zone.

The cartilage may become definitely fibrillated, and with this change there is usually evidence of proliferation and the formation of groups of cartilage cells (Fig. 2). The fibrillation begins as a rule on the free surface, and may extend to the deepest parts of the articular cartilage.

The hyaline cartilage may become converted into a modified fibro-cartilage, but in such specimens there is usually evidence of some inflammatory process in the neighbourhood of the altered structure. This process seems to be due to proliferation of the cartilage cells, but in some specimens the connective tissue cells of the inflammatory tissue also appear to take part in the formation of fibro-cartilage.

Areas of the articular cartilage may become necrotic; this necrosis may be found where inflammatory reaction has taken place. The edges of the necrotic mass often show a beautiful "replacement fibrosis" (Fig. 3), which may eventually lead to the complete removal of the necrotic tissue.

In some joints portions or even the whole layer of the articular cartilage may be infiltrated and replaced by a more or less vascular inflammatory tissue (Fig. 4) owing to the cartilage having been invaded by new blood vessels and connective tissue cells. In certain specimens the cartilage cells proliferate, and appear to take part in the formation of the new tissue which has replaced the cartilage (Fig. 4). This replacement of cartilage may begin either on the free surface from an inflammatory process spreading from the synovial membrane or capsule, or in the deeper parts of the cartilage by the extension of an inflammatory process from the subjacent marrow spaces (Fig. 5).

The articular bone may show atrophy, rarefaction, resorption, or erosion.

The superficial osseous trabeculae underlying those portions of the articular surface in which advanced atrophy, fibrillation, or complete wearing away of the cartilage has taken place often show increase in size and density owing to the formation of new bone, brought about by continued use of the limb notwithstanding the joint changes. The amount of the new bone formed appears to depend upon the reaction of the tissues to pressure, and this increases in proportion to the weight and friction on the affected area. In those instances where the cartilage is absent and the superficial bone exposed this process leads to polishing of the superficial surface of the sclerosed bone. Associated with this increased density of the osseous trabeculae minute fractures are often seen; these are probably of traumatic origin. In the neighbourhood of these fractures there is generally callus formation with a combined process of resorption and repair around the injured area. These changes are common in osteo-arthritis and chronic gout, but are not common in rheumatoid arthritis.

In those instances in which the inflammatory changes are confined to the synovial membrane active changes are not observed in the bone marrow or osseous trabeculae, but there is often atrophy of the osseous trabeculae in the neighbourhood of the affected joint; this appears to be due to disuse.

When an inflammatory process attacks the articular cartilage, or bone of a joint, inflammatory changes do not, except in rare instances, involve the whole of the epiphysis, but are usually strictly confined to the quite superficial cancellous spaces and superficial osseous trabeculae (Fig. 5). As a rule these changes are not found over the whole of the articular surface, but only in isolated areas; they vary greatly in intensity and extent in different joints or in different parts of the same joint. The process may be a chronic, slowly progressive resorption of bone accompanied by new formation of bone in the neighbourhood. In such areas very few or no multinucleated osteoclasts are observed. When the process is more active, proliferative changes are found in the bone marrow with congested blood vessels, multinucleated osteoclasts, and inflammatory cells. This process often leads to erosion of the articular cartilage and the underlying bone; with very rare exceptions the formation of new bone can be seen taking place in the affected area. In some cases the resorption of bone is more rapid than the new formation, in others formation of new bone is in excess, and may lead to the formation of bony outgrowths on or around the articular surface.

The development of new bone in a damaged joint may take place (*a*) in the articular cartilage, (*b*) in altered articular cartilage, (*c*) in the zone of calcified cartilage, (*d*) on the edge of pre-existing bone trabeculae, (*e*) in inflammatory connective tissue in the cancellous spaces, (*f*) in fibrous adhesions.

The development of new bone in hyaline cartilage may be due to changes in the cartilage cells; these changes are usually preceded by a deposition of calcium salts in the surrounding matrix. This is followed by proliferative changes in the cells and the gradual development of new bone around the modified cartilage cells.

The development of new bone in altered hyaline cartilage—for example, fibro-cartilage—may occur through changes similar to those described in the hyaline.

The development of new bone is sometimes seen in areas of vascular inflammatory tissue which have invaded and replaced a portion of the articular cartilage. The new bone in this case may either be formed by cartilage cells as above described, or from the fibroblastic cells of the inflammatory tissue.

The development of new bone in the zone of calcified cartilage may be due to changes similar to those described in the hyaline.

In rheumatoid arthritis the development of new bone on the edges of pre-existing bone trabeculae is usually accompanied by proliferative changes in the marrow, which lead to resorption of bone in the neighbourhood of the new formation. The two processes occur simultaneously, and appear to depend upon some irritant causing increased blood supply, which brings about resorption, and upon pressure on the affected area from use of the limb, which causes the development of new bone.

When new bone develops in inflammatory tissue which has replaced the marrow and osseous trabeculae it appears to be formed from fibroblastic cells in this inflammatory tissue.

New bone in fibrous adhesions appears to be formed from the fibroblastic cells of the fibrous tissue.

In all the above instances the development of new bone is associated with the formation of cancellous spaces and marrow tissue. The new marrow usually consists of adipose tissue. The formation of the cancellous spaces appears to be due to the development of new blood vessels, to changes in the vascular supply, and to the development of stellate connective tissue cells which ultimately form adipose tissue.

Limitation of movement in a joint may be due to (*a*) muscular spasm, (*b*) shortening and atrophy of muscles and tendons, (*c*) fibrotic changes in the capsule leading to contraction, (*d*) alteration in shape of the articular surfaces, (*e*) ankylosis which may be fibrous, cartilaginous, or osseous.

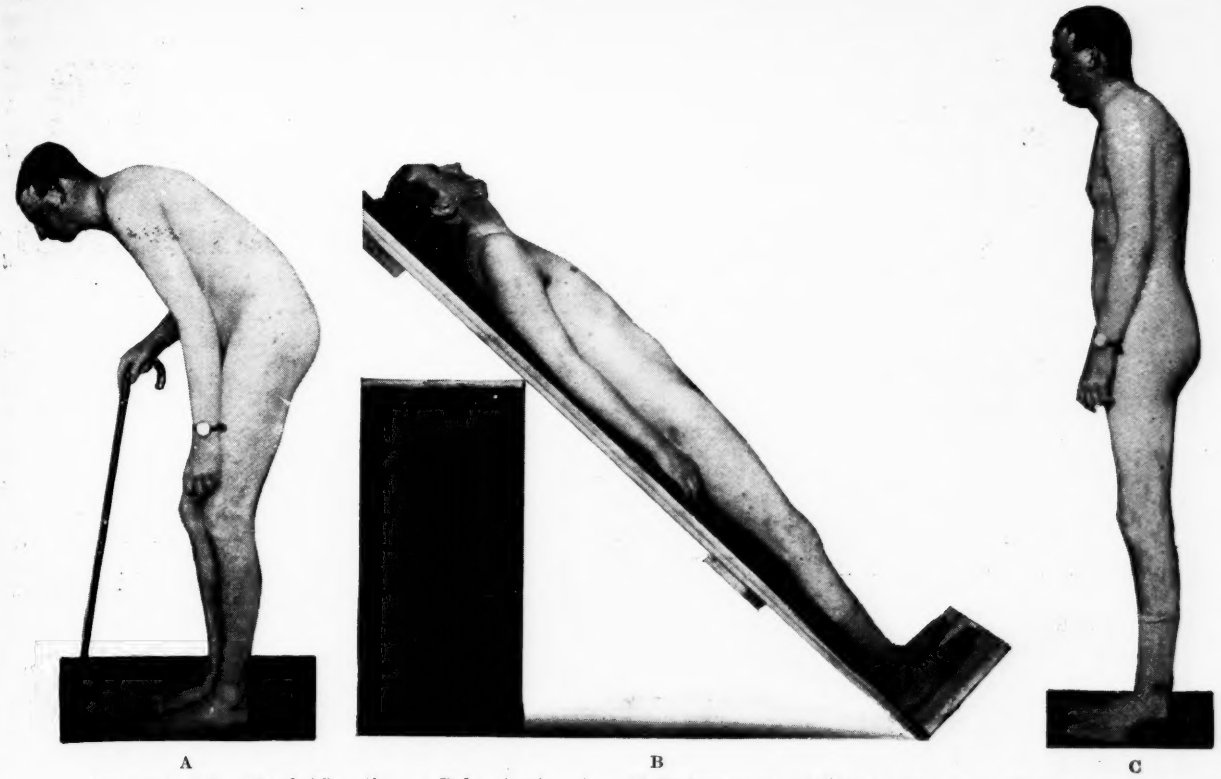
Where the limitation of movement in a joint is due to muscular spasm it can be overcome by deep anaesthesia, but it returns when the effect of the anaesthetic has passed off.

The forcible movement of a joint in which shortening and contraction of the muscles and tendons is suspected should not be lightly undertaken, as it is often associated with fatty changes in all the tissues of the joint, and fracture of any or all the tissues around the joint may take place.

Fibrotic changes in the capsule associated with contraction may be so extreme that the joint cavity is completely obliterated and the joint surfaces lie in close contact with the fibrous capsule moulded tightly around the articulation.

Fibrous ankylosis is due to adhesions formed by the organization of inflammatory tissue which may originate either in the synovial membrane, the capsule, or in the superficial marrow spaces. These adhesions may partly or completely occlude the joint cavity. They may consist of long processes of more or less vascular fibrous tissue, which thus allow limited movement to take place in the joint, or of dense contracted fibrous tissue which firmly unites the articular surfaces of the two bones (fibrous ankylosis).

The articular cartilage may become ankylosed by the matrix of the two layers of the hyaline cartilage becoming fused into one continuous layer, or the two layers may unite and be transformed into a modified fibro-cartilage (Fig. 6). The ankylosed cartilage may be



A B C

Bent Back of Five Months' Duration. A, Before treatment. B, Under treatment with "back-board." C, After treatment.

MAJOR W. F. BROOK: VANGHETTI'S OPERATION.

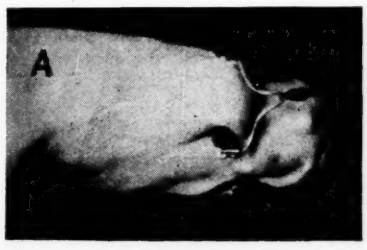


FIG. 1.

FIG. 2.

FIG. 3.

D. NOËL PATON, L. FINDLAY, A. WATSON: THE CAUSE OF RICKETS.

A

B

X-ray photographs of wrist-joints of A, pup kept in the country and free of rickets, and B, kept in laboratory and markedly rachitic.

FIG. 1.—Showing inflammatory changes in the synovial membrane and capsule. *a*, Synovial membrane. *b*, Group of inflammatory cells. *c*, Thickened blood vessel.

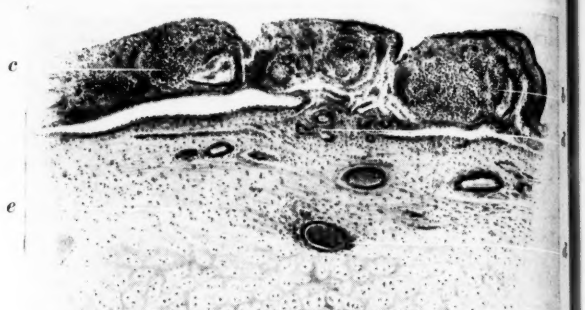


FIG. 4.—Showing inflammatory tissue invading surface of articular cartilage. *a*, Articular cartilage. *b*, Inflammatory tissue. *c*, Superficial bone trabeculae. *d*, Blood vessels and inflammatory cells. *e*, Cartilage cells which appear to be taking part in the formation of the fibrous tissue.

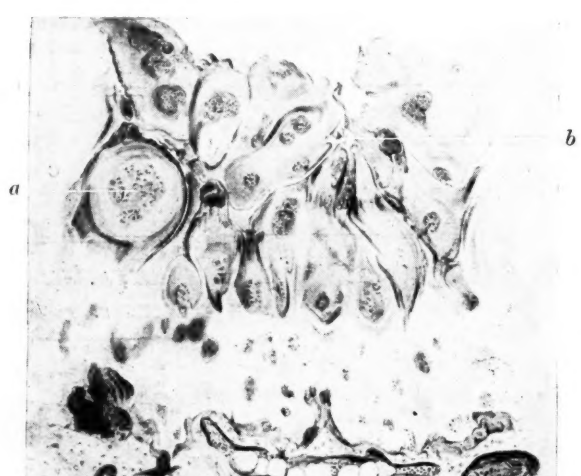


FIG. 2.—Showing fibrillation of articular cartilage. *a*, Group of proliferated cartilage cells. *b*, Fibrillation of cartilage. *c*, Superficial bone trabeculae. *d*, Marrow.

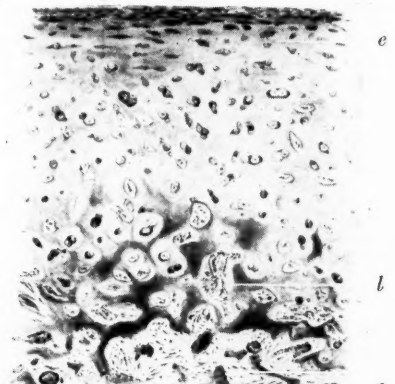


FIG. 5.—Showing inflammatory tissue from the superficial marrow spaces invading and replacing deeper layers of articular cartilage. *a*, Superficial marrow space *b*, Group of inflammatory cells. *c*, Inflammatory tissue replacing cartilage. *d*, Young blood vessel. *e*, Superficial layer of articular cartilage.

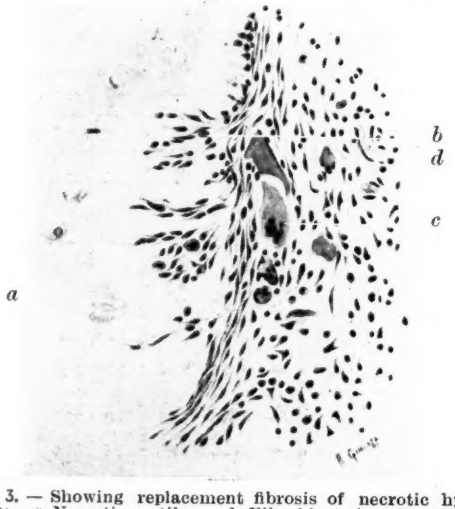


FIG. 3.—Showing replacement fibrosis of necrotic hyaline cartilage. *a*, Necrotic cartilage. *b*, Fibroblasts invading necrotic cartilage. *c*, Multinucleated cell. *d*, Young blood vessel.

FIG. 6.—Showing ankylosis due to inflammatory changes. *a* Newly formed bone. *b*, Ankylosed hyaline cartilage. *c*, Ankylosed fibro-cartilage. *d*, Young connective tissue cells and new blood vessels. *e*, Group of inflammatory cells.

invaded and replaced by an inflammatory fibrous tissue (Fig. 6, *d*) or new bone may develop in the ankylosed cartilage and thus bring about osseous ankylosis.

Osseous ankylosis takes places by the development of new bone either in ankylosed cartilage or in the fibrous tissue which has already produced fibrous ankylosis.

Ankylosis may occur between the two zones of calcified cartilage, but this form of fusion shows a tendency to become replaced by one of true bone.

Villous outgrowths are found in some joints. These may be due to (*a*) overgrowth of normal villi; (*b*) inflammatory changes in the synovial membrane or in the capsule.

Villous outgrowths in a joint may consist of (*a*) vascular fibrous tissue, (*b*) dense fibrous tissue, (*c*) fibrous tissue enclosing groups of fat cells, (*d*) inflammatory tissue with dilated capillaries and groups of inflammatory cells, (*e*) degenerated or necrotic tissue, (*f*) connective tissue showing vessels deeply congested owing to obstructed circulation.

Villous outgrowths may become detached by rupture of the fine pedicles, and so form a loose body in the joint cavity. The detachment may be preceded by necrosis.

Microscopic villi formed of cartilage are occasionally found on the surface of altered articular cartilage. These may be formed of hyaline or fibro-cartilage.

No constant changes are found after death in the organs or tissues of patients who have suffered from rheumatoid arthritis.

OBSERVATIONS ON THE CAUSE OF RICKETS.

[WITH SPECIAL PLATE.]

BY

D. NOËL PATON, LEONARD FINDLAY,

AND

ALEXANDER WATSON.

(From the Physiological Laboratory, University of Glasgow.)

IN the course of an investigation on metabolism in rickets the difficulty of getting satisfactory material from children induced us to produce rickets in a certain number of young dogs, while keeping others free from the disease.

The previous experiences in this laboratory had shown that rickets may almost certainly be induced in the great majority of pups of certain breeds of dog by simply keeping them in the animal house of the department, while the experience of every keeper who breeds dogs is that if pups are to be reared without rickets developing they must have abundant exercise in the open air. One of us (L. F.) has already published an experimental investigation on the etiology of rickets in young dogs,[1] in which he records that puppies freely exercised when fed on bread and water, oatmeal and water, etc., did not develop rickets, but became marasmic and died. On the other hand, puppies fed on oatmeal porridge and milk, if allowed to run about, remained free of the disease, but if confined developed it.

In the large series of experiments made by Mills Renton and Madge Robertson[2] in this laboratory on the influence of thymusectomy on the production of rickets, all the pups were kept on the same diet of oatmeal porridge and milk with bones for them to gnaw. Some became rickety, some remained free of the disease, their immunity seeming to depend rather upon the breed than upon their mode of life. Thus, all the collies developed rickets; of the retrievers one remained normal while two became rachitic; the two fox terriers showed slight signs of rickets, while the two greyhounds remained normal. Thymusectomy had no effect on the onset of the disease. One collie which had suffered severely from rickets made a complete recovery, and was alive and well except for deformities at the age of six months. The diet had not been altered, but the animal had been kept outside during August and September for most of each fine day.

In 1913 Casimir Funk[3] suggested that rickets may be due to absence of some "vitamine" from the food, but his arguments in favour of this view are far from convincing.

As is well known, Bland-Sutton maintained that by the administration of fat the development of rickets in young carnivores kept in confinement might be prevented. But the general experience of zoological gardens at present is that no amount of fat in the food will prevent rickets if the cubs are confined.

Hess and Unger[4] record observations on negro children in the negro quarter of New York where a very high proportion develop rickets, which tend to show that cod-liver oil has a prophylactic action.

E. Mellanby, on January 26th, 1913, gave a short communication to the Physiological Society reviving Funk's vitamine theory and maintaining that he had demonstrated by experiments on pups that—

"1. Rickets is a condition primarily due to lack of an accessory factor in the diet.

"2. This accessory factor is found in (1) extractives, especially meat; (2) fats, especially butter, but not in linseed oil.

"3. Lack of exercise may play some part, but not a primary part, in the development."

Till his evidence has been published it is of course impossible to estimate the value of the observations. The present vogue of "vitamines" and "accessory factors" seems to have led to a somewhat premature adoption of this theory.

The very extensive study of the "Social and Economic Factors in the Causation of Rickets" by Margaret Ferguson from this laboratory[5] gives little support to the theory that the disease is due to a dietary deficiency. The tables given on pp. 68 and 69 seem to show conclusively that the difference in diet between rachitic and non-rachitic families is small and that the overlap is large, and indicate pretty clearly that some other factor than feeding is involved in the causation of the condition. The very striking difference in the air space of the houses and in the extent to which the two groups of children had opportunities of free egress to the open air seems to show that in some way these conditions exercise a marked influence upon the immunity to the development of rickets.

Present Observations.

As already stated, the present observations were not undertaken primarily to investigate the etiology of the disease, but to give us a certain number of normal controls, and a certain number of rachitic animals for the study of calcium metabolism.

Since seventeen pups were involved an opportunity was afforded of checking and extending our previous experience.

Two litters were used, both collies, a breed peculiarly liable to rickets. The first litter of eight was received on March 30th, 1918, just after they had been weaned at seven weeks old. They were of a small black collie strain. When they arrived they were in poor condition and verminous. The vermin were destroyed, and they improved in condition. They were fed on oatmeal porridge and milk, and were killed at 13 weeks old.

The second litter of nine, of a rough working collie strain, were received with their mother on March 22nd, 1918, at 14 days old. They were all in good condition, and were suckled till about March 28th, and then put on oatmeal porridge and milk.

They were killed when about 11 weeks old.

A. *Pups Sent to the Country.*

Of the first litter a dog and a bitch were sent to the country on April 12th, 1918, when 9 weeks old. They were in poor condition when they left the laboratory. In the country they were kept in a large loose-box in a stable, and they had the run of a stable yard and garden under the personal observation of one of us (D. N. P.). They were sent back to the laboratory on May 12th and killed at the age of 13 weeks. They were strong and healthy and showed no signs of rickets. (Special plate, Fig. A.)

Of the remaining six of the first litter one was sent to the country on April 19th, 1918, in charge of another laboratory worker, but it did not get the same amount of exercise as the other four, and was returned on May 2nd, looking thin, after which it was allowed to run about in the laboratory. When killed at 13 weeks old the body was well nourished. *X*-ray and *post-mortem* examination failed to show definite signs of rickets at the ends of the bones, although the femur was soft and split easily with a knife.

Of the second litter a dog and a bitch were sent to the country on April 18th, 1918, at 5½ weeks old, and were kept under the same conditions as the first litters till June 3rd, when they were returned to the laboratory free of rickets and killed at the age of 11 weeks. Both sets of checks were fed upon oatmeal porridge and skimmed milk, the average amount consumed by each pup per day being: Oatmeal 150 grams, milk (skimmed) 280 c.cm. Taking the fat content of skim milk at even 1 per cent.—it is generally given at 0.3 per cent.—this gives 2.8 grams of fat per day.

B. *Pups Kept in the Laboratory.*

The remaining five of the first litter were kept in the laboratory in a large airy room. Four were as far as possible kept confined in a stall about 3 ft. by 3 ft.

One was allowed the run of the room, but being alone it took little exercise.

The food consisted of oatmeal porridge and whole milk—oatmeal 175 grams, milk (whole) 100 c.cm.—till May 21st, when

as the pups were larger, 200 c.cm. were given. Taking 3 per cent. as the average amount of fat in milk, this is equivalent to 3 grams per day, and later to 6 grams.

During life the wrist-joints were examined and photographed by *x* rays, and careful necropsies were made after killing with chloroform and bleeding. All showed marked rachitic changes, and the femur split easily with a knife. (Special plate, Fig. B.)

The remaining seven of the second litter were allowed to run about in the laboratory till May 21st. One died on May 6th. After May 21st three were confined in a small stall, while the other three had the run of the room. Those in the stall were constantly trying to get out and took almost as much exercise as the others.

Ten grams of butter were given daily, from May 9th, to one of those confined and to two of those running about. One of the latter died on June 3rd, and showed signs of rickets. The others had the same food less the butter. The food was the same as that of the first litter.

Those without butter were getting about 3 grams of fat at first, then 6 grams of fat, while those with butter during the latter period were getting, say, 6 grams *plus* 8.5 = 14.5 milk fat per day, equivalent to about 450 c.cm. of milk. As was to be expected, they showed a somewhat more rapid growth than the others. All were killed, along with the checks, on May 15th at the age of 11 weeks. They were examined and photographed by *x* rays, and careful *post-mortem* examinations were made.

All those kept in the laboratory showed signs of rickets to a greater or less degree. One which had been confined and had had butter (Dog 2) was most markedly affected. It was unable to walk. Another of the confined animals which had had no butter was least affected. No difference could be detected between the others. All showed marked splaying of the fore feet, distinct rachitic changes of the wrist-joints, and softening of the femur, so that the bone cut easily with a knife.

LITTER I.

Weight in kilos.

Date.	In Country.			In Laboratory.			
				Confined.			Running Free.
	D2.	B1.	B2.	D3.	B5.	B3.	B4.
1918.							
April 1	2.19	1.75	1.65	1.77	1.90	1.65	2.53
„ 8	2.15	1.85	1.77	1.80	2.00	1.77	2.45
„ 15	—	—	1.75	2.32	2.15	2.00	2.72
„ 22	1.90	1.90	—	2 25	2.30	2.00	2.95
„ 29	2.78	2.90	—	2.46	2.27	2.20	3.00
May 6	—	—	2.30	—	—	—	—
„ 13	4.90	3.95	2.40	2.80	2.60	2.40	3.15
Gain: Total ...	1.90	2.20	0.75	1.03	0.70	0.75	0.62
„ Per week (average)	0.31	0.36	0.12	0.17	0.12	0.12	0.10

D2 and B1 were sent to the country on April 12th, 1918, and were returned to the laboratory on May 12th. B2 was sent to the country on April 19th, and was returned on May 2nd.

LITTER II.

Weight in kilos.

Date.	In Country.		In Laboratory.						
			Confined.				Running Free.		
	D1.	B2.	B1.	B4.	B5.	D2.*	B3.*	B6.*	B7.
1918.									
April 1	0.88	1.17	0.68	0 93	0.70	0.87	0.80	0.66	0.77
„ 8	1.00	1.30	0.72	1.04	0.71	0.97	0.84	1.00	0.90
„ 22	—	—	1.07	1.42	1.00	1.45	1.18	1.45	1.42
„ 29	—	—	1.23	1.62	1.07	1.56	1.34	1.6	1.55
May 13	2.55	2.85	1.37	1.82	Died	1.85	1.25	1.70	1.70
„ 21	—	—	1.60	2.20	—	1.85	1.40	2.20	1.92
„ 27	—	—	1.75	2.20	—	2.10	1.30	2.15	1.95
June 5	4.00	4.05	1.95	2.35	—	2.65	Died	2.50	2.15
Gain: Total ...	3.12	2.88	1.27	1.42	—	1.78	—	1.84	1.38
„ Per week (average)	0.35	0.32	0.14	0.16	—	0.20	—	0.20	0.15

* These three animals were given 10 grams of butter daily from May 9th.

D1 and B2 were sent to the country on April 18th, and were returned to the laboratory on June 3rd.

The pups, both those sent to the country and those retained in the laboratory, were weighed at regular intervals. (See accompanying tables.) It will be seen that the onset of rickets is not associated with periods of active growth.

Conclusions.

Pups kept in the country and freely exercised in the open air, although they had actually a smaller amount of milk fat than those kept in the laboratory, remained free of rickets, while the animals kept in the laboratory all became rickety.

The observations seem to show that some other factor than diet is the prime cause of rickets in dogs, and afford no evidence that milk fat (butter) contains any accessory factor protecting against the development of rickets.

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VANGHETTI'S OPERATION.

[WITH SPECIAL PLATE.]

BY

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IN the recent article dealing with the utilization of stump muscles as advocated by Vanghetti[1] the writer rightly finds fault with Sauerbruch's method of providing the local motor, for this is all tunnelization amounts to, on the score of "difficulties in maintaining the nutrition of the long flap (in which the lines of blood and nerve supply are largely cut across) and in bringing together the edges of the gap caused by its removal without dangerous tension and inconvenient traction upon neighbouring parts."

During the last eight to nine months I have, when occasion arose, been making use of Sauerbruch's method with more or less success, getting over the above difficulties by—

1. Cutting the flap in the long axis of the limb of ample width (that is, not less than one-third of its length) and with a good lining of subcutaneous tissue.
2. Avoidance of pressure on the skin tube by leaving in it at the time of operation nothing larger than a probe, and by making the muscle canal of ample capacity.
3. Leaving a layer of subcutaneous tissue on the raw surfaces from which the flap is lifted, and covering in with a Thiersch's graft instead of drawing the edges together.

Even so, however, the range of movement is poor owing to another and fundamental defect which underlies the whole method. On referring to Fig. 8 in the article mentioned and to the majority of the illustrations in Sauerbruch's monograph it will be seen that the tissues tunnelized are not only muscle and skin, but fascial sheaths of muscle as well.

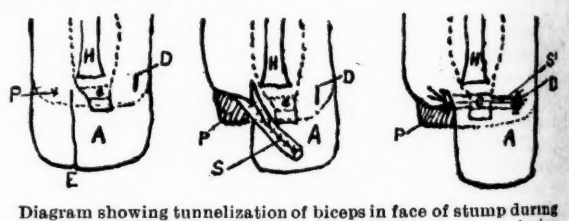

Diagram showing tunnelization of biceps in face of stump during amputation; biceps tunnelled at C. H. Humerus; A, anterior flap split at E and punctured at D; P, posterior flap; S, skin tube fashioned; s^1, ditto *in situ*.

The continued traction of the working muscle will very soon mobilize skin if free from scar tissue, but on the other hand, fixation of the skin tube to fascial sheath will more or less effectively anchor it and largely defeat the object of the operation. Still, to give the Devil, and even the Hun, his due, the following brief note shows that tunnelization of muscles with a skin tube is likely at times to prove useful in Vanghetti's operation.

I recently had occasion to amputate above the elbow, and was fortunately able to save the whole of the biceps muscle and an ample anterior flap of skin. The musculo-tendinous stump of the biceps was isolated and tunnelled half an inch from its end (see diagram). The anterior flap

was split vertically at about the junction of its outer and middle thirds and the outer portion, fashioned into a tube, was drawn through the tunnel in the biceps and fixed in a small skin incision, as at D. Though primary union has occurred in the skin tube in spite of a septic focus at the back of the stump, it is too soon as yet to speak with certainty, but I hope in this case to combine the large range of movement of Vanghetti's peg motor with the advantage of his loop.

I have recently seen again a man whose stump muscles I treated as described some six months ago, and two months after amputation above the elbow. The resulting range of movement in the biceps, as shown in the photographs, is fairly satisfactory—that is, 1½ in.; that of the triceps is not more than ¾ in. Care was taken here to canalize the muscles as close as possible to their cut ends. The detrimental influence of the muscle sheath is less in the arm than in the forearm and increases as the muscle is canalized further from its cut end. In the special plate Figs. 1 and 2 show the extremes of relaxation and contraction of the biceps under elastic traction; *a* is the grafted surface from which the flap for the anterior skin tube was raised. Fig. 3 shows a simple contrivance kindly made for me by Mr. Peacock, of the Dan-y-coed Auxiliary Hospital (associated with the 3rd Western General Hospital), the object of which is twofold—namely, (1) to provide exercise for the muscles pending the fitting of the artificial limb, and (2) to supply as far as possible the normal degree of tension of the muscle at rest, the elastic traction being easily graduated. I had hoped that the latter might, with care, have been maintained continuously—that is, by night as well as day—but find that in this case the skin tube will not tolerate the continuous pressure however slight. This may after all not be essential.

REFERENCE.
[1]BRITISH MEDICAL JOURNAL, July 20th, 1918, p. 68.

HYSTERICAL TREMOR.

BY

W. JOHNSON, MAJOR R.A.M.C.(S.R.).

THE tremor which I propose to deal with here is not the ordinary fine tremor affecting hands and head, so commonly seen in neurasthenia, but a coarse, severe form, somewhat resistant to treatment, exhibited by soldiers, and described by them as "shaking all over." The importance of studying this group of cases—one of the many distinct groups into which so-called shell shock is clinically divisible—will be seen when the question of treatment comes to be considered; unless carefully treated, there is a great tendency in these cases to develop an intractable state by the time they reach England. In the early days thorough treatment yields excellent results.

ETIOLOGY.

Judging purely from the clinical side and from the severity of the condition in the first few days, it was felt that there must be some organic injury responsible. Investigation of individual patients has, however, shown definitely that this is not so. Some, indeed, have come on immediately after the explosion of a shell at such close proximity that aërial concussion cannot be absolutely excluded as an etiological factor. These cases form a minority, and I have found that most of those I have seen have resulted from severe emotional shock, with no shell-burst near enough to have produced any physical effect. Often it has occurred in a man who has undergone the prolonged strain of heavy fighting, with its consequent loss of sleep and irregular food, simply from the "sights he has seen" or the fact of casualties occurring amongst his friends. The condition falls, therefore, under the heading of "manifestations of fear," hysteria being the cause of the clinical establishment and persistence of the symptoms.

A noticeable feature is that I have not found the condition become established in the case of any officers or senior non-commissioned officers. Rather it seems liable to occur in young poor-looking individuals and to attain a more resistant stage in them than in the few who were older. Therefore, not only is the temperament of the patient concerned, but his "ego," as influenced by rank, seems to play an important rôle. This I have observed amongst many other types of hysterical disorders.

SYMPTOMS.

Seen within a few hours of the onset the tremor is often general all over the body, and coarse, almost clonic, in character. The patient often has a trick of keeping his head covered by the blanket, and of blinking spasmodically if this is removed. He is also extremely emotional, and any attempt to question him may result in an outburst of weeping. He should therefore be handled and troubled as little as possible on admission. In a large number of cases two or three days in bed with a dietary not erring on the meagre side brings the patient to the stage when it is obvious that his tremor is not going to persist. In other cases (those with which I am dealing here) it is found that while the tremor has diminished in the legs the patient presents a violent coarse movement of the head and upper extremities. Altogether I have had thirty such cases. When reckoned in ratio of the total number of psychoneuroses admitted, they indicate that the condition is fairly rare. In common with other hysterical disorders, the patient's general state improves all round the while his hysterical symptom becomes worse. He soon walks comparatively well, but the shaking of his head and shoulders seems to become more hopeless each day. The movement chiefly affects the muscles of the neck, shoulder girdles, and pectoral regions. When lying undisturbed the shaking becomes less coarse, and it disappears entirely during sleep. In the waking state it never entirely ceases, and any slight suspicion of danger may aggravate it to an extreme degree. These relapses, however, I have found fairly amenable to treatment.

Examination of the muscles affected brings out a few points of great importance. The patient gradually assumes a "fixed attitude," varying with the severity and distribution of the tremor. The head may be turned to one or other side, or bent backwards, and the shaking carried on from this position. The shoulders are slightly raised, and the movement of the points of the shoulders during the shaking is often considerable. The arms are flexed at the elbows, and the hands in a position between pronation and supination; the tremor is a slight up-and-down movement of the forearm.

These positions, which I have referred to as "fixed attitudes," are the result of a state of mild tonic contraction of the muscles concerned. This condition is readily recognized on palpation with the hand, especially in situations like the neck and forearm, where the hands can loosely encircle the anatomical part. It can also very readily be demonstrated in the trapezius and cervical spinal muscles. This tonic condition of the muscles tends to diminish during the first three or four days, giving place to an increased coarseness in the tremor. It may be of interest to remark that the normal person is able to assume voluntarily this tonic state, but one finds more difficulty in performing, for even a short time, the extensive coarse movement which these patients are able to keep up continually in the later stage.

Irregular Types.—The head, shoulder, and arm movements form the common type. In a few cases these cease rapidly, and leave an irregular movement of the facial muscles—chiefly of the orbiculares palpebrarum and oris—associated with slight head tremor. In one case the movement became localized to the left platysma, the whole of which could be plainly seen contracting beneath the skin; this patient had had a slight twitching in this position years before. He improved under treatment, but relapsed badly after a fright. Major T. T. Higgins, who saw him eventually, from the point of view of surgical treatment, pointed out that there was a marked hypertrophy of the platysma on the affected side. I have remarked neither muscle wasting nor hypertrophy in any other cases. More rarely the tremor has become localized to one or other arm, but these cases are of a fairly mild type.

TREATMENT.

(*a*) In the first few days, before the general shaky condition has settled down into the definite coarse hysterical tremor, the patient is kept in bed, fed fairly generously, and, purgatives excepted, no drugs are given. On the second or third night a mild hypnotic may be called for, if the patient shows any insomnia, but my experience is

that this is seldom needed. The change from trench life to a comfortable bed is usually sufficient to induce sleep, and I hold there is strong reason to avoid the administration of soporifics in these cases. Much more important than drugs at this stage is psychic treatment. The patient finds himself in a ward where the "atmosphere" of cure is strong. He sees other men rapidly recovering from conditions similar to his own. His medical officer visits and talks to him daily, and tries to obtain his intelligent co-operation. I have found that the least hysterical type of patient is able voluntarily to relax his muscles more or less completely. He is told to let himself go as "though he were dead"; and if this is done with any success it is then demonstrated to him that his limbs can be "flopped" about and that at the same time his tremor practically disappears. This mild exhibition of suggestion I have found of great value. On the fourth or fifth day he is got out of bed and enters on a course of mild graduated physical exercises under a special instructor.

(*b*) Once the typical uncontrollable tremor has been thoroughly established, rigid intensive treatment will alone give good results. Psychic treatment again plays the greater part, and in its name most of what follows is used.

Each case is placed in a cubicle, the lines of treatment explained to him, and his co-operation enlisted. He is kept lying down in as relaxed a position as he can assume, although, as a rule, he does not succeed too well in this. He is seen daily and his efforts commended. The diet is light and given at stated intervals. A mixture containing valerian is given night and morning, or, where indicated, iron and arsenic. Active local treatment of the muscles involved is given twice daily and consists in five minutes' rubbing, followed by five minutes exercises. Odorous liniments are more successful than the inodorous. The rubbing is done by a professional rubber who used to train men for athletics, and whose methods accordingly are singularly applicable to this type of case. The exercises to follow this are valueless unless the "fixed attitude" of the patient is forcibly corrected while they are being carried out. For instance, where the shoulders are habitually kept raised (that is, in the shrugged position) the patient should be seated near two handles by grasping which he is able to pull his shoulders well down. If necessary, an assistant can aid him by pressing down on his shoulders at the same time. In this position the patient is instructed to perform strong head turning, bending, and rolling movements in regular sequence.

Suitable exercises and suitable positions in which they are to be done must be devised for the individual case. If the shoulders are carried forward, as in marked pectoral tremor, a long stick under the arms will serve to restore their position. If there is a wrong position of the head, this can be counteracted by an assistant pulling the head in a diametrically opposite direction. The resistance experienced in counteracting these attitudes will be found to diminish with each occasion the patient is treated.

As an adjunct in aiding a patient to correct his "fixed attitude," a mirror may be placed in front of him. By this means visual reinforcement is supplied to the voluntary effort, which, as is well known, is deficient in these cases. A looking-glass, too, will be found essential for the performance of the facial exercises in face tremor.

Finally, patients must never be allowed to lose heart during their treatment. A slight modification in routine may be found to suit the mental kink of a particular patient, and this short road to recovery should always be kept in mind.

I have had no failure amongst my cases with the exception of the one case with a pre-war history. If treated from the commencement little trouble is to be anticipated. The average time in the cubicle has been ten to fourteen days. In one or two instances, where the desire for recovery has not been the most prominent point in the case (*les malades invétérés* of the French), treatment has had to be extended up to three weeks and then suddenly the malady has vanished. Here there must be no misplaced sympathy: their treatment should consist, in the aphorism of Sir George Savage in a recent article, of "sympathetic but judicious neglect."

AT the annual meeting of the American Surgical Association held at Cincinnati in June (6th to 8th) Dr. Lewis S. Pilcher was elected president for the ensuing year.

PRELIMINARY NOTE
ON
THE COMPLEMENT DEVIATION IN CASES OF MALARIA:
A NEW AID TO DIAGNOSIS.

BY

J. GORDON THOMSON, CAPTAIN R.A.M.C.(T.C.).

THIS preliminary note is published in advance of the full paper being prepared on the subject, because the details as to technique which it contains may enable other workers to make collateral studies on an aid to diagnosis in malaria which may prove important. It is especially required to find if possible a test sufficiently delicate to indicate complete or nearly complete recovery from infection.

War Office,
28th November, 1918.

RONALD ROSS, Colonel,
Consultant in Malaria.

THIS research work was undertaken under the direction of Colonel Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S. The difficulty of definitely diagnosing chronic cases of malaria in which parasites cannot be found in the peripheral blood has always been a serious one; and considerable doubt is often held whether a patient has ever had malaria or not.

The effect of treatment by quinine after the disappearance of the parasites from the peripheral blood is gauged by the continued improvement of the patient's health; but there is really no accurate means of determining a permanent cure.

The fixation of complement depends on the presence of antigen and antibody; if either of these is absent the complement remains untouched. Until the present research was undertaken investigators were unable to obtain a satisfactory specific antigen for malaria, without which it was impossible to examine serums by these methods.

After a large number of experiments a specific antigen for malaria has been prepared in the following manner: Make a culture of malaria parasites from as heavily infected a case as possible according to the method described by J. G. and D. Thomson (1913).[1] After twenty-four to forty-eight hours' incubation, pipette off the supernatant serum, and add an excess of distilled water to the remaining corpuscles. Shake up and centrifuge, removing the supernatant fluid each time. This process can be repeated until the fluid is quite free from haemoglobin. The sediment at the bottom of the centrifuge tube consists of the bodies of malarial parasites, the washed envelopes of red cells, and leucocytes. Dissolve this sediment in as small a quantity of decinormal sodium hydrate as possible, and a straw coloured viscid fluid is obtained. Neutralize this by adding normal hydrochloric acid solution drop by drop. The more numerous the malarial parasites and the less fluid used in dissolving them, the stronger the antigen will be. Dilute this solution ten times with normal saline and test its anticomplementary action by titration with varying dilutions of guinea-pig's serum. Carry out further dilutions until an antigen is obtained which does not of itself prevent the action of complement.

The best antigen obtained in these experiments acted well diluted 1 in 30 with normal saline. Experience has shown us that the anticomplementary powers of this antigen varies enormously, and it has been found necessary sometimes to dilute our original antigen one hundred times before it could be used. The higher the dilution of course the weaker the antigen becomes, and it should be the aim of the experimenter to obtain as strong an antigen as possible which is not too anticomplementary. Recently we have used an antigen composed of ten different strains of benign tertian malarial parasites with satisfactory results, and this gives a positive reaction with known cases of benign or malignant tertian malaria.

The antigen must be titrated before use to estimate the minimum dose of complement we require to use in the test. The patient's serum is diluted 1 in 10 with normal saline. Put up for each serum four tubes, three of which contain antigen, the fourth being the serum control.

Into the three tubes containing antigen we introduce two and a half, three, and three and a half doses of complement, and two and a half doses are added to the serum control. An antigen control is put up with each series. Each batch of malaria serums tested has introduced into the series at least two known negative serums and two known positive serums. The method used is long fixation in the cold, the tests being kept overnight in the ice chest. In the morning the sensitized red cells are introduced, and the results read after fifteen minutes in the water bath at 37° C. The reading of the results must be carefully done and taken immediately after the negative controls; serum and antigen controls show complete haemolysis.

By using antigen prepared as above described I have performed tests on the serums of 200 known cases of benign and malignant tertian malaria, with or without parasites in the peripheral blood, and at all stages of treatment by quinine.

After short courses of treatment the blood serum gives positive results, and in many cases we have obtained positive results after a considerable amount of treatment; but the reaction tends usually to become weaker. After very prolonged treatment and in cases where there has been no attack of malaria for many months the blood serum usually gives a negative result.

As the doses of complement used are small and the reaction often weak, it is obvious that the tests have to be carried out with great care, and serum, antigen, negative and positive controls introduced into every series of tests done. The serum should in every case be drawn with aseptic precautions into sterile tubes, and it should be used as soon as possible after being taken from the patient, or fallacious results will be obtained.

It is interesting to note that the serums of syphilitic patients give a positive result with this antigen, and it is necessary to exclude this disease.

How far this test will be of use in the future for the diagnosis of chronic cases of malaria liable to relapse we are unable to state, as experiments have not been in progress long enough, but there can be no doubt that with an improved specific antigen a more definite reaction not so liable to error will be obtained, and thus a new and useful test added to the clinical pathology of malaria.

I wish to thank Sir Ronald Ross for all his kind help and encouragement, and Captain David Thomson and Sergeant Denny, without whose aid I could not have made such progress in these observations. Captain Gardner and Dr. Jamieson gave me great assistance in every way during the investigation.

REFERENCE.

[1]The Growth and Sporulation of the Benign and Malignant Tertian Parasites in the Culture Tube and the Human Host, *Proc. Roy. Soc.*, B, vol. lxxxvii, 1913, and *Ann. Trop. Med. and Parasit.*, vol. vii, No. 4, 1913.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE SUPRARENAL GLANDS IN INFLUENZA.

WITH reference to the report on the influenza epidemic in the British armies in France, 1918 (November 9th, p. 505), it would be of general interest to know if the suprarenal glands showed any abnormality.

In view of the marked decrease of blood pressure in the majority of the cases of fatal bronchopneumonia, the suprarenals were specially examined at the 4th Northern General Hospital in three typical cases. Besides the morbid changes, which are noted in the report, the suprarenals were found to be very disintegrated by haemorrhages, which were most marked at the cortical medullary junction. Sections showed extensive haemorrhages throughout the three layers of the cortex, most marked at the cortical medullary junction, and extending to a slighter extent into the medulla; the cells showed marked cloudy swelling, and many cells of the cortex showed a fatty change, as shown by staining with scarlet red.

E. S. WINTER, Captain R.A.M.C.(T.F.),
In charge Pathological Department, 4th Northern General Hospital, Lincoln.

LIGHT CHLOROFORM NARCOSIS FOR TRANSPORT.

THE administration of chloroform in the firing line is often clearly indicated. If it is not more often performed it is, I think, because many medical officers do not realize how easily it can be done. A man in severe pain may be put under chloroform more easily than a woman in childbirth. Above all, there is, in my experience, no active excitation period with singing or shouting which might draw the enemy's fire if the wounded man happens to be lying in the open at night.

A few drops of chloroform are put on a handkerchief which is held to the patient's face. He takes three or four slow breaths, finds that the pain is diminishing, and then breathes rapidly and deeply, simply drinking in the chloroform. In little more than thirty seconds the conjunctival reflex disappears.

The injured man may then perhaps be got free from the wreckage of a dug-out, or broken bones fixed in a favourable position, without pain and consequently without increasing the severity of the original wound shock. He is then lifted on to a stretcher and carried back to the regimental aid post, usually remaining in a semi-conscious condition for the whole journey. On arriving at the aid post he may be given tea, hot soup, or, if advisable, a little solid food. The anaesthetic given as described does not induce vomiting. In the warmth of the aid post the patient again soon becomes drowsy, and he finally departs for the casualty clearing station showing very little signs of shock and in as good a condition as one could hope for.

H. M. STEPHENSON, M.C.,
Temporary Captain R.A.M.C.

HERNIA OF OVARY AND TUBE.

A CHILD, aged 12 weeks, was brought to the Tynemouth Jubilee Infirmary, North Shields, on account of a painful swelling in the right groin which it was stated, had been present since birth, and increased considerably in size on coughing or other exertion. A small elastic swelling about the size of a pigeon's egg was noted in the right inguinal region; it was dull on percussion, expansile and reducible. A diagnosis of hydrocele of the canal of Nuck was made.

A small incision, parallel to Poupart's ligament, was made, and the sac, which was firmly adherent to the round ligament near its fundus, opened. It contained a small quantity of pale straw-coloured fluid; the right tube and ovary were adherent just beyond the neck. There were several small petechial haemorrhages. The adhesions were separated by gauze dissection and the ovary and tube replaced. The sac was ligatured with catgut and removed, and the wound closed in the usual manner. The child was allowed to go home with its mother after the operation, a collodion dressing being applied. Recovery was uninterrupted.

CYRIL H. CUFF, M.B., B.S.Dunelm.,
Lieutenant R.A.M.C.

ABDOMINAL OR BILOCULAR HYDROCELE.

THE following case is a comparatively rare condition. A previous case in this hospital was operated on by the P.M.O., Mr. F. O. Lasbrey, in 1916, and reported by him in the BRITISH MEDICAL JOURNAL of August 26th, 1916. This case differs from that in the remarkable size attained.

The patient was an Egyptian peasant, aged about 45, who was admitted to the C.M.S. Hospital, Old Cairo, on August 20th, 1918, complaining of a swelling of the abdomen and scrotum. He attributed the condition to a blow in the groin with a pole some years previously, as after that the scrotum became distended, and later the abdomen also. At the time of admission the abdomen was enormously distended with fluid right up to the costal margin, the lower ribs on either side being widely separated from the middle line. The right side of the scrotum was also very large. On percussion a flat note was obtained over the whole of the front of the abdomen, right up to the ribs, with resonance in the flanks. Communication of fluid between the scrotal sac and that in the abdomen was quite free. A fluctuation impulse could be obtained between the two swellings, and pressure on either increased the tension in the other. The appearance and physical signs of the abdomen were very similar to those in a woman with a very large ovarian cyst.

The patient had to be kept in hospital some time before operation owing to an ulcerative condition of the abdominal wall, the result of native attempts at treatment in his village.

On September 7th an incision about 4 in. long was made on the antero-lateral aspect of the right side of the scrotum, and the hydrocele sac was separated from its coverings and delivered. The neck of the sac was freed as much as possible. A second incision, about 5 in. long, was made vertically on the abdominal wall, over the right rectus, with its lower end about 2 in. above the pubic crest. After cutting through both sheaths of the rectus and retracting the muscle, peritoneum was encountered but not opened. The sac was post-peritoneal, as is, I believe, usually the case, a double layer of peritoneum covering a large part of its anterior surface. This was dissected up. It was very thick, and numerous adhesions had to be tied in freeing it. The fluid contents of the sac were then drawn off through the scrotal incision by means of a trocar and cannula, two pails being filled with the fluid. The hole made by the cannula was clamped, and the whole bilocular sac freed and delivered without rupture. The vas deferens and the vessels of the cord were so elongated and stretched that it was deemed necessary to remove the testicle with the sac. Both incisions were closed in the usual way, and the two wounds drained by a tube in the lower one. The patient made a good recovery.

The fluid contents measured 27 pints, and were of a dark brown colour rich in cholesterine. The sac was later inflated with air and is an interesting specimen, hour-glass in shape, the larger sac being about four times the size of a football.

I am indebted to my colleague, Mr. J. E. Bateman, for his valuable assistance at the operation.

ROBERT B. COLEMAN, M.B., Ch.B.,
Church Missionary Society's Hospital,
Old Cairo, Egypt.

Reports of Societies.

ACCIDENTAL HAEMORHAGE.

AT a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, held on October 25th, with Sir JOHN MOORE in the chair, Sir WILLIAM SMYLY reported two cases of concealed accidental haemorrhage.

The first patient was admitted to the Rotunda Hospital on September 1st, 1917, early in the morning. Her two previous pregnancies had terminated normally at full term. This time she had noticed nothing unusual until the previous evening, when she was suddenly seized with violent abdominal pain and a feeling of distension, and noticed an increase in the size of her abdomen. On admission she was blanched and cold, temperature subnormal, and pulse scarcely to be felt; uterus very hard and tender to touch, no fetal parts to be felt, no visible haemorrhage; urine scanty, laden with albumin casts, some pus and blood cells. When the abdomen was opened the uterus presented a remarkable appearance, dark bluish-purple, almost black in colour, with blood extravasated in patches over its surface, the peritoneal covering being in places raised in large blebs filled with blood, one of which on the posterior surface had burst; the rent was about an inch in length, and there was free blood in the peritoneal cavity. When cut through, the uterine wall showed blood extravasation throughout. The cavity was filled with blood and the placenta completely detached; the child was, of course, dead. After the uterus had been emptied and the wound closed in the usual manner, it contracted well after a dose of pituitrin had been injected hypodermically. There was no further haemorrhage, and she made a good recovery, the urine being free from albumin before she left the hospital.

The second patient, aged 39, was admitted to the Rotunda Hospital on December 7th, 1917, in the thirty-sixth week of her ninth pregnancy. Her first terminated prematurely at the eighth month in consequence of eclampsia, preceded by headaches and disordered vision, resulting in permanent injury to the sight of one eye. She had convulsions, and was unconscious for a week; the child was stillborn. The four succeeding pregnancies were normal and the children living, but the three following ended in abortion. On admission she said she had been ailing for about three weeks with headaches and impaired vision. Her urine was scanty and contained a large amount of blood and tube casts. The child could be easily palpated, its head presenting in the first position. The diagnosis was pre-eclamptic toxaemia, and she was treated in the usual routine method which has been adhered to for several years in the Rotunda Hospital. For the five days following there was little change, the total quantity of urine passed in twenty-four hours varied from 20 to 30 oz., and the blood pressure was above 200 mm. On the sixth day, an hour after taking some barley water and milk, she complained of violent abdominal pain and said she could see nothing. When seen shortly after she appeared to be collapsed. Her skin was pale, cold, and clammy, and bathed in perspiration, the temperature was subnormal, and a little reddish discharge flowed from the vulva. Her abdomen was evidently larger, the uterus swollen, hard and tender, and the fetus no longer palpable. The abdomen having been opened, the uterus presented the same remarkable appearance as in the former case, being much distended, dark bluish-purple in colour, with numerous patches of ecchymosis on its surface, and the wall, when cut through, showed blood extravasated throughout its substance. The placenta was completely detached, the cavity full of blood and clots, and the fetus dead. The operation was rapidly completed, the uterine wound being closed by a running catgut suture. She made a good recovery, but owing to her toxaemic condition was still restricted to water for three days after delivery, during which her urine rapidly improved both in quantity and quality, so that by the fourth day it was normal in colour and free from albumin.

Sir William Smyly said that both these women were in what was commonly known as the pre-eclamptic state, which was identical with eclampsia, and to which Dr. Bar had given the name of "eclampsisme." Most, if not all, the severer forms of accidental haemorrhage occurred in connexion with it; the actual cause of haemorrhage and of the separation of the placenta was thrombosis of the uterine veins. The condition had been aptly compared to that of an ovary tumour with a twisted pedicle. It was noteworthy that one of the patients subsisted for more than eight days upon nothing but water, and that in neither of them was it necessary to remove the uterus.

Dr. HASTINGS TWEEDY thought Sir William Smyly had emphasized three points of especial interest: (1) That the worst forms of accidental haemorrhage were of toxic origin; (2) that the haemorrhage occurred not only into the uterus, but also into its muscle wall and into the abdominal cavity; (3) that the removal of the fetus by Caesarean section resulted in a smaller mortality than if the entire uterus was also removed. It was usual to find the uterine wall retracted shortly after the removal of the afterbirth, and if this occurred haemorrhage would cease, and the shock to the patient would be lessened by an operation which preserved the uterus. He agreed that there was no better treatment than Caesarean section for these toxic haemorrhages where the patient could be treated in a well appointed hospital. For all other forms of accidental haemorrhage the vaginal plug provided a safer remedy, and he had recently been able to demonstrate beyond any doubt that such a plug actually stopped the circulation through the uterine vessels.

Dr. GIBBON FITZGIBBON said there appeared to be little doubt that a toxic type of *ante-partum* haemorrhage existed, and possibly the changes in the uterine blood vessels were allied to those occurring in the liver and other organs in other types of toxaemia. It was only since these cases were first reported by Williams and were operated upon by laparotomy that the true condition had been recognized and the facts explained which accounted for the severe results of haemorrhage in the absence of visible bleeding, and often although relatively little blood was afterwards found in the uterus. As regards nomenclature, "toxaemic *ante partum* haemorrhage" appeared to cover everything and to be restricted to the proper type of case.

Dr. BETHEL SOLOMONS did not agree that eclampsisme was a good name. It was unnecessary and would puzzle the student. He suggested that all conditions which showed signs of toxaemia—for example, albuminuria, raised blood pressure, etc.—should be grouped under "toxaemia," and that all non-toxaemic forms of haemorrhage should be grouped under "haemorrhage" as heretofore. He had seen one of the cases reported, and he agreed that while it appeared almost foolhardy to leave in *situ* the uterus and broad ligaments bleeding into the abdomen it was, in fact, the best treatment.

The CHAIRMAN said he was much impressed by the value of Sir William Smyly's views as to the close relation of toxaemia to many cases of accidental haemorrhage in pregnancy. The presence of albuminuria and of tube casts in the urine, together with the extremely high arterial pressure noted in one of the cases, pointed to an acute infection, or more probably to an auto-intoxication, from the intestinal tract. The haemorrhagic tendency reminded one of the condition of purpura observed in malignant cases of

typhus, of small-pox, and even of influenza as seen in the existing epidemic.

Dr. MADILL was sceptical regarding Dr. Tweedy's statement that pulsation in the uterine arteries could be stopped by tight vaginal plugging. He found it difficult to understand the effectiveness of induction of labour by plugging in concealed haemorrhage when the uterine wall showed the diseased condition described by Sir William Smyly.

Reviews.

AN ITALIAN HANDBOOK OF MALARIA.

PROFESSOR VITTORIO ASCOLI'S treatise on malaria[1] is mainly useful, at any rate to those of other nations than his own, by reason of the classified bibliographies it contains. The study of malaria covers a very wide field in its relation not only to clinical medicine and pathology, but also such subjects as entomology, sociology, commerce, strategy, and economics. The literature of such a subject, besides running into thousands of items, is scattered through a large number of periodicals, some of them not accessible in most medical libraries. Had Professor Ascoli's sectional bibliography been fuller it would have been most welcome; unfortunately, it is too short; the whole subject of antimosquito work, for instance, is represented by only twelve entries!

The text of the book suffers from lack of condensation, and a general absence of summaries or any expression of the author's own opinion. The section on quinine prophylaxis, for instance, occupies fourteen pages; quotation of the opinions of thirty-five authors ensures that all sides of the question shall be represented, but there is nothing to indicate what Professor Ascoli himself thinks. Again, was it necessary to give a long general life-history of the malaria organism and then go over the same ground for each of the three species?

The entomological section of the book calls for comment. The author makes the common mistake of figuring egg and pupa of a *Culex* and an *Anopheles*, and then stating that the differences hold good for the two subfamilies as a whole. The broad differences between the larvae and adults of the Culicidae and Anophelinae are, of course, correctly given. It is difficult to see why four species of *Anopheles* are selected for fairly detailed treatment, while a number of quite important carriers of malaria are not even mentioned by name.

The great majority of the figures are not provided with any indication of the scale on which they are drawn. The index is sufficient.

A TEXTBOOK OF GYNAECOLOGY.

It is just two years since, in reviewing Professor GRAVES'S *Gynecology*[2] on its first appearance, we indicated that it was a volume in all respects worthy of the great medical school from which it came, and was likely to find wide acceptance amongst practitioners. The appearance of a second edition within two years seems to prove that this has been the case. We do not, however, wish to base any claims to peculiar discernment on the fulfilment of our expectations, for Professor Graves's book possessed many obvious merits well calculated to command success.

In the second edition the section on the relationship of gynaecology to the organs of internal secretion has been revised. Unfortunately, it seems also to have been elaborated, and this, in the case of a complex subject upon which even expert opinion is still fluid, appears to be a mistake. Those who wish to study the subject exhaustively will seek their material elsewhere than in a textbook of gynaecology.

The use of radium in both malignant and non-malignant growths receives very adequate attention, and the section on the application of radium to the female reproductive organs is the fullest and best we have seen.

[1] *La Malaria.* Parasitologia, patologia e clinica, epidemiologia, profilassi e importanza sociale. By Professor Vittorio Ascoli, Prof. di Patologia Medica All' Universita di Pavia. Torino: Unione tipografico-editrice Torinese. (Sup. roy. 8vo, pp. xvi + 1127; five plates, 143 figures in text.)

[2] *Gynecology.* By Wm. P. Graves, M.D., F.A.C.S., Professor of Gynaecology at Harvard Medical School. Second edition. Philadelphia and London: W. B. Saunders Co. 1918. (Sup. roy. 8vo, pp. 885; 491 illustrations. 33s. net.)

In regard to menorrhagia due to "uterine insufficiency" the author refers rather disparagingly to the operation of hysterotomy. Apparently he is not familiar with the literature of this operation in Britain. Indeed, his unfamiliarity with European literature other than German is perhaps the most noticeable demerit of the whole work. Speaking generally, nine out of ten references are German and the tenth is American. One has to search for any reference to either British or French work; even in the most likely places the search is often unfruitful. Our only other criticism is that there is too much in the book. The introduction of a section upon Freud's views as to the sex impulse is unnecessary; and descriptions of operations for umbilical hernia and varicose veins should be left to textbooks of surgery—there is nothing "peculiar to women" in them. With these minor criticisms we endorse our views as expressed two years ago.

NOTES ON BOOKS.

THE Federation of British Spas, which comprises Bath, Buxton, Cheltenham, Droitwich, Harrogate, Llandudno, and Woodhall, has published a handbook for medical men and health seekers. It has been prepared with the assistance of local medical committees, and is illustrated by pictures and maps. The title is *British Spas and Health Resorts.*[3] Dr. FORTESCUE FOX, in a short introductory chapter, confesses that it is not possible to forecast the future of the British spas, but it is, as he says, certain that nothing ever stands still, and it is therefore difficult to suppose that the British spas can remain in their present phase of development. Able hydrologists in other countries have, he says, in half a century built up a new science, which is included in the scope of their university teaching, but the subject is not taught in this country. Dr. Fox seems to look to the Government to encourage, assist, and in some measure co-ordinate the development of British health resorts, but we would have more hope in the Federation, though it does not yet include all British spas. The matter is really in the hands of the citizens of the various towns, and unless they recognize more fully that a health resort is a place for treatment controlled by medical experts we suspect that British patients will again begin to go abroad, and that their doctors will advise them to do so.

Low's Handbook to the Charities of London for 1918[4] has just been issued. It is comprehensive, has a well-classified table of contents, which for a book of this kind is better than an index, and has proved its worth by reaching its eighty-third year.

The *Transactions of the Sixth International Dental Congress*, compiled and edited by Mr. H. R. F. BROOKS, has been published by the Committee of Organization (Hanover Square, London, W.), price 30s. The Congress was opened by its president, Mr. J. Howard Mummery, on the fateful Tuesday, August 4th, 1914. On that day the delegates from France, Belgium, and Germany were not present, and it was necessary to bring the congress to a premature end on August 6th. Nevertheless a good many valuable papers were read, which have been collected into this quarto volume of nearly 800 pages.

[3] London and Cheltenham: Burrow and Co. 2s. net.

[4] London and Edinburgh: Sampson Low, Marston and Co., Limited. (Cr. 8vo. pp. lxx+254. 1s. 6d. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

Polyvalent Influenza Vaccine.

WE have received from Messrs. Burroughs, Wellcome and Co. a specimen of a mixed influenza vaccine prepared in accordance with the requirements stated at the War Office conference on October 14th (BRITISH MEDICAL JOURNAL, October 26th, p. 470). This preventive vaccine is made under scientific control at the Wellcome Physiological Research Laboratories, and it is stated that each cubic centimetre contains 60 million *B. influenzae*, 200 million pneumococci, and 80 million streptococci, and also that it includes more than twenty strains isolated from cases occurring during the present epidemic. It will be remembered that the conference recommended two doses to be given at an interval of ten days, the second being twice the strength of the first. With the "Wellcome" influenza vaccine, mixed, the first dose is 0.5 c.cm. and the second 1 c.cm. It is issued in phials of 1 c.cm. (price 3s.) and rubber-capped bottles of 25 c.cm.

British Medical Journal.

SATURDAY, DECEMBER 7TH, 1918.

MEDICINE IN THE GENERAL ELECTION.

APART from the extension of the franchise to women the most remarkable features of the reform act of this year and of the discussions it aroused were the retention of the representation of universities and the rejection of the principle of proportional representation, except in the case of the universities. Most persons who have gone into the matter with an unbiassed mind have become convinced that a true representation of the opinion of the country can only be obtained by some form of proportional representation. Among the statesmen who hold this view are men of such widely diverse opinion as Mr. Asquith and Mr. Balfour, Viscount Milner and Mr. Smillie, and Lord Robert Cecil and Mr. Gulland.

The university franchise is in addition to, and not in substitution of, the ordinary right to be on the register and to vote for the locality in which the person resides or has his place of business. A person may vote on his residence qualification and also in his university constituency, but it must be noted that, though a man is entitled to be registered on his residential qualification in one constituency and on his business qualification in another constituency, if he makes use of his university qualification he foregoes the right of claiming the business qualification. He may exercise only two votes, one in respect of residence qualification and one in respect of any other qualification—namely, business or university. The definition of "business" is held to include such qualification for registration as is afforded by the tenure of a surgery or consulting rooms in a constituency other than that of residence. A woman is entitled to vote for a university constituency if she has attained the age of 30 and if her name has been placed on the university register. Since in the case of women a business qualification is not recognized for registration a woman voter in a university will not be required to make the declaration that a male university voter must make to the effect that he has not voted at this general election in respect of any qualification other than a residence qualification.

Although the character of the contests in most of the university constituencies will not make the test of the method at all conclusive, it will be interesting to see how proportional representation works in them. It will apply in the University of Oxford, where there are three candidates for two seats, and also in the University of Cambridge, where Mr. Dampier Whetham is standing against the two retiring members, Mr. Rawlinson and Sir Joseph Larmor, F.R.S. It had been announced that Mr. Whetham was standing as a Labour candidate, but we are informed that this is incorrect; he is described by his supporters as "a progressive in university matters and a moderate tory in imperial politics." In the seven combined universities in England there are four candidates for the two seats, but no medical candidate. In the four combined Scottish universities, where a large proportion of the electors are medical graduates, there are six candidates for the three seats; of these three are medical—Sir Watson Cheyne, who sat for the Universities of Edinburgh and St. Andrews in the last Parliament, Dr. Peter Macdonald of York, who stands as a Labour candidate, and Professor W. R. Smith. In all these cases the election will be by the system of proportional representation, known as the single transferable vote; that is to say, the voter will have the right to number the candidates in the order of his preference. In the Universities of London and Wales, with one seat each, the method does not apply. In the latter Mr. Herbert Lewis, who has been closely associated with the development of the university, is opposed by a woman Labour candidate. For the single seat of the University of London there are now five candidates, including Sir Philip Magnus, who has represented the University since 1906, and Sir Wilmot Herringham, physician to St. Bartholomew's Hospital. In Ireland there are four university seats. Dublin University has two seats, for which there are five candidates, of whom two are lawyers. Both the members in the last Parliament were lawyers, but there is good reason to hope, if the medical graduates rally well to him, that on this occasion one of the seats will be secured by Sir Robert Woods, surgeon to Sir Patrick Dun's Hospital, who, like the two lawyers who are opposing him, is a Unionist. For the National University of Ireland there are three candidates; two are Nationalists—Mr. J. P. Boland, who represented South Kerry in the last Parliament, and Professor Conway; the third candidate is Professor J. McNeil, a Sinn Feiner. For the single seat of Queen's University, Belfast, Sir William Whitla, physician to the Royal Victoria Hospital, and President of the British Medical Association when its annual meeting was held in Belfast, is opposed by Mr. John B. Dolan, M.A. (Sinn Fein). There are thus six medical candidates for the fifteen university seats. It is a matter of great regret that no medical candidate has come forward for the combined universities in England, as it seems extremely probable that such a candidate might have been elected as the colleague of Mr. Fisher, president of the Board of Education.

When we turn to the medical candidates for ordinary constituencies, it is found that there is a possibility of the medical representation in the new Parliament being considerably larger than on any previous occasion. Dr. Christopher Addison, Major W. A. Chapple, M.D., and Sir Auckland Geddes, who sat for constituencies in London, Scotland, and Hampshire in the last Parliament, are standing again. Among the medical candidates nominated elsewhere is Sir Thomas Flitcroft, who is standing for the Farnworth (Lancashire) Division as a Liberal Coalitionist. During his thirty-five years' practice in Bolton he has taken a leading part in the public life of the district, having been president of the Bolton Liberal Association for twelve years, and chairman of its election committee on two occasions. He is an active member of the British Medical Association, is chairman of the Bolton Division, has represented it on several occasions at the Representative Meetings, and has been president of the Lancashire and Cheshire Branch Council. At a meeting of the committee of the Bolton Division on November 26th a resolution was unanimously passed "That Sir Thomas Flitcroft will prove thoroughly acceptable to his fellow practitioners, and can be trusted to uphold to the utmost the dignity of the profession, and to maintain its unity in medico-political matters." Major A. C. Farquharson, R.A.M.C.(T.), who is standing for Leeds, North, has also done much good work for the British Medical Association, and is at the present time a member of the Central Council. The list of

medical candidates nominated, so far as we have been able to ascertain at the time of going to press, is published at p. 636, and in the SUPPLEMENT is a paragraph on the notes and questions for parliamentary candidates which have been forwarded to the secretaries of Divisions for their assistance in interviewing candidates. In view of the relatively small number of medical candidates, it becomes all the more important for the Divisions to take advantage of the opportunity to bring the views of the profession before parliamentary candidates and their immediate supporters in every constituency.

PAST AND PRESENT.

THE reader of the graphic and entertaining lectures on the state of medicine in the reign of George III, which Dr. Arnold Chaplin delivered last year,[1] cannot have failed to institute a comparison between the standard of six generations ago and the level of professional culture in these times, much to the advantage of his contemporaries. Macaulay's boast (uttered nearly ninety years ago) that "there is not now a bricklayer who falls from a ladder in England who cannot obtain surgical assistance infinitely superior to that which the sovereign of Austria could command in the twelfth century," would, indeed, be equally true if we substituted "eighteenth" for "twelfth" in his sentence. But all good has its rateable proportion of evil and some phases of latter-day thought make it expedient to discuss whether the highly trained practitioner of 1918 may not be in danger of pitfalls his less sophisticated predecessors would have avoided.

This train of reflection is suggested to us by an article in a leading London evening paper dealing with the latest phase of the influenza epidemic, and commencing with the words (the italics are ours): "The influenza epidemic has now apparently been *definitely mastered* so far as London is concerned." We are ready to believe that these words are a mere turn of phrase, but we are not equally sure that the medical profession repudiates with sufficient steadfastness the power to bind and to loose with which the laity seeks sometimes to invest it. There is something too much of military metaphor in dissertations, both lay and professional, upon the public health; we are constantly hearing that only such or such a reform is needed for the "stamping out" of this or that epidemic disease, while "plans of campaign" against tuberculosis, infant mortality, and physical degeneration are endless. Some knowledge of the history of diseases is as useful to the medical reformer as is a training in civil history to the statesman. Perhaps in this respect alone the average practitioner of the twentieth century compares unfavourably with his ancestors, for, while the historical specialists of our generation far surpass in learning and acumen the antiquarians of the eighteenth and seventeenth centuries, the average medical writer's acquaintance with the earlier history of his art is similar to Sir Robert Walpole's knowledge of literature, which consisted, we are told, "of a scrap or two of Horace and an anecdote or two from the end of the dictionary." The reason is much the same—like Sir Robert, the practitioner is interested in other things.

But it is precisely in connexion with the stamping out, or mastering or campaigning against age-long diseases, that this ignorance is dangerous, and may lead to the encouragement of expectations which will not be fulfilled.

[1] BRITISH MEDICAL JOURNAL, 1917, vol. ii, pp. 637, 688, 721.

We can illustrate our argument from the case of our English Hippocrates, Thomas Sydenham. Paraphrasing Burke, we may ask, Who now reads Sydenham; who ever read him through? Certainly not many popular "experts." Yet a slight acquaintance with the writings of that great man would have saved some from committing very ludicrous blunders. Take the supposedly mysterious and obsolete doctrine of epidemic constitutions. It is easy to jeer at Sydenham, to object (as did Rogers in the eighteenth century) that he did violence to nature in an attempt to bring the succession of diseases in London into conformity with what Hippocrates observed in Thasos. But the fundamental notion that the general symptomatology of reigning epidemics undergoes variations in part intrinsic, in part dependent upon terrestrial conditions which lead to a convergence of types, a doctrine which can easily enough be expressed in current bacteriological phraseology (variations in virulence of the primary organism and differences in the type of secondary invader), had it been part of the ordinary practitioner's intellectual stock, would surely have saved us from much nonsense respecting the "new," "mysterious," and "unprecedented" epidemics of recent years.

Yet another aspect of Sydenham's teaching conveys a needed warning to this generation; his statement of the evolutionary principle in the succession of diseases is thus expressed: "I may be allowed to think, that diseases have certain periods for their remarkable, and hitherto undiscovered changes—changes which take place in the very bowels of the earth, according to its age and duration. Moreover, just as other diseases have existed long ago, yet have already either wholly been extinguished or else have become well-nigh worn out from age (leprosy, for instance, and probably others), so shall those diseases which now prevail, some time or other, sooner or later, become extinct, and in their extinction give way to new species, the natures whereof are beyond even our conjectures."[2]

The decline of plague and the rise of scarlet fever justified this prophecy generations before the dawn of a health age. The vicissitudes of scarlet fever, its virulence in the late eighteenth century, its benignity in the first quarter of the nineteenth, and again its murderous severity for so many years after 1830; the self-congratulations of the profession between 1800 and 1830, Graves's eloquent deduction of the moral that "in spite of our boasted improvements, we have not been more successful in 1834–5 than were our predecessors in 1801–2,"[3] are no mere archaeological curiosities but facts full of instruction for us now. The real triumphs of modern medicine, such as stand recorded in the history of, for instance, the mitigation of industrial lead poisoning, are so great that our profession must not stoop to assent even tacitly to the claims of politicians and other well-meaning but ignorant enthusiasts, that a reconstructed health service will within a few years make straight all that is now crooked. We are, indeed, wiser than our ancestors, but not so much wiser that we can, neglecting the teaching of their experience, accept the bills which are now being drawn so lavishly upon the credit of the medical profession.

Perhaps we can convey our moral in the guise of an apologue. Somewhere in the East a curiously fashioned clock has been set up. This clock will inevitably run down in a finite time, and will stop much sooner if its wheels are clogged by dust.

[2] *The Works of Thomas Sydenham, M.D.* R. G. Latham's translation from the Latin edition. The Sydenham Society, 1848. Med. Obs. v, 4 (15).

[3] Graves's *Clinical Lectures*, i, 304.

A prudent artificer who contracts to keep the clock in order while promising to do his best to keep the machinery clean, will point out to his employer that, from time to time, sandstorms have raged and filled the village clocks with dust, and that although he may make suggestions as to weather boarding, he is not in a position to control the whirlwind.

THE UNIVERSITY CONSTITUENCIES.

THE number of parliamentary seats for the universities used to be nine—five in England, two in Scotland, and two in Ireland. There are now fifteen—eight in England, three in Scotland, and four in Ireland. The universities whose graduates exercise the university franchise for the first occasion at this election are the seven combined universities in England, the University of Wales, the National University of Ireland, and the Queen's University, Belfast. According to a table issued by the Local Government Board, showing the number of parliamentary electors on the first register under the new Act, it appears that the total number of electors in England and Wales is a little over seventeen millions. The university electors number a little over 30,000. The largest constituency appears to be the University of London, with 9,797 electors; next comes the University of Cambridge, with 9,282; and next the University of Oxford, with 7,907. In the seven combined English universities there are 2,357 electors, ranging from 886 in the Victoria University of Manchester to 70 in the University of Bristol. In the University of Wales there are 1,066 electors. The value of the university franchise, therefore, is very high, since 30,000 electors return fifteen members. We can only regret that a larger number of medical candidates have not come forward. We should very much like to see the University of Cambridge challenged. It has been in the habit of returning at least one member of academic and scientific distinction, and has probably the largest medical school in England. It is a matter of particular regret that no medical candidate has come forward on this first occasion for the representation of the combined universities.

THE TREATMENT OF WAR PSYCHO-NEUROSES.

THE term "shell shock" has hindered the acceptance of a purely psychological explanation of the war psycho-neuroses, and its gradual disuse signifies the growth of a belief that the continuation of symptoms is not, save in a small proportion of cases, due to the physical effects of concussion or burial. Now that the psychical origin of the various symptoms is admitted, we find two methods of treatment which, though essentially different, seem to produce results that satisfy their advocates. In one method reliance is placed upon exercises, electro-therapy, and, it may be, drugs, such as bromides or valerian; the suggestive effect of physical treatment is usually admitted, and deliberate suggestion may be employed, with or without hypnosis. The patients are given employment in order to prevent introspection and are encouraged to forget their war experiences. By those who use the other method little regard is paid to the physical symptoms unless their immediate removal is necessary for practical reasons; thus mutism or paraplegia would be dealt with speedily in order to facilitate further treatment, but the thorough advocate of psychotherapy would make no attempt directly to treat a stammer or a hysterical gait. All the symptoms are regarded as caused by unpleasant or terrifying experiences which the patient is unwilling or unable to recall; when these memories are brought back and the patient is taught to face them his symptoms are permanently removed. This method is applied to hysterical conditions, and especially to the less obvious but equally important group which includes the phobias, obsessions, and anxiety neuroses. Its advocates claim that repression of varying degree is to be found in every case, a total amnesia for war experiences marking one end of the scale and a mere reluctance to speak of them marking the other. Hypnosis, word association, and dream analysis are among the means employed to revive the buried memories, and no patient is regarded as cured unless he can discuss his experiences freely and easily. The choice between the two theories is not confined to students of the psycho-neuroses. We all have the alternatives of forgetting our troubles or unburdening ourselves of them; we generally tend to suppress the recollection of unpleasant episodes, and to a certain extent we succeed and retain our peace of mind. Those, however, who hold the second of the two views stated above, consider it unwise to encourage a man to cultivate amnesia for occurrences which have probably been the most emotional events of his life, more especially as, in their opinion, evidence is accumulating which leads them to believe that the recall of buried memories results in cure.

PHARMACOLOGY IN INDIA.

THE Government of Bombay has appointed a committee to prepare a scheme for a Pharmacological Laboratory and Research Institute for the investigation of drugs, and more particularly the indigenous drugs of India. The committee is in the first place to ascertain what has been done in this direction in other parts of India, so that developments in Bombay may be co-ordinated so far as possible with similar efforts elsewhere. It is instructed to recommend the place where a laboratory and institute could most suitably be established; to advise as to the nature, buildings, equipment and staff required; and to submit an approximate estimate of the cost, including maintenance charges. The committee, which was appointed at the instance of the Honourable Khan Bahadur Haroon Jaffer, is constituted as follows: Lieut.-Colonel A. Street, M.B., F.R.C.S., I.M.S. (chairman); Lieut.-Colonel W. Glen Liston, C.I.E., M.D., D.P.H., I.M.S.; R. Row, M.D., D.Sc.Lond.; N. F. Surveyor, M.D.Bomb., M.R.C.P.Lond., D.P.H.Camb.; Professor T. K. Gajjar; Hakim Syed Abu Yusuf Asfahani, Bombay; Sir Bhalchandra Krishna, L.M., and Mr. R. L. Mackenzie Wallis, Research Chemist to the Director of Industries. We learn from the *Madras Mail* that an informal meeting of medical men has been held at Delhi to decide upon the future of medical research in India, and the relation which should exist between the bacteriological and sanitary departments.

THE DETECTION OF THE FEEBLE-MINDED.

DR. RICHARD BERRY, professor of anatomy in the University of Melbourne, and Mr. S. D. Porteus, superintendent of special schools in Victoria, have published[1] a useful paper entitled "A Practical Method for the Early Recognition of Feeble-mindedness and Other Forms of Social Inefficiency." The authors suggest that, to determine the prevalence and degree of mental abnormality in a population, a first sorting should be effected by measurement of the cranial capacity. Individuals whose cranial capacities greatly exceed or fall short of the average of their sex and age should then be subjected to a combination of the intelligence tests devised by modern experimental psychologists. A table is given showing the percentiles[2] of 2,104 public school boys and university students, and it is suggested that the mentally abnormal types will tend to be found below the 10 percentile or above the 90 percentile

[1] *Medical Journal of Australasia*, August 3rd, 1918.

[2] The word percentile is due to Galton; the percentiles mark the values of a character possessed by an assigned percentage of a sample. For instance, suppose 1 per cent. of a sample of men have incomes not exceeding £100, 2 per cent. not exceeding £150, 10 per cent. not exceeding £200, and 50 per cent. not exceeding £500. The first percentile is £100, the second £150, the tenth £200, and the fiftieth £500. Galton, however, generally used deciles—that is, the values which divided the total frequency into ten equal parts; the first decile marked the value of the character which was not exceeded by 10 per cent., the second decile that not exceeded by 20 per cent., and so on.

—that is, will be persons whose cranial capacity is exceeded by 90 per cent. of those at the same age or whose cranial capacity is greater than that of 90 per cent. of their fellows. Actually it was found that 50 per cent. of the microcephalics, as just defined, were found to be at distinctly subnormal levels, only 5 per cent. being above the average intelligence; while of the macrocephalic group 14 per cent. were of subnormal and 25 per cent. of above average intelligence. The authors very fairly set out the advantages and disadvantages of their method, and we agree with them in thinking the importance of the subject great. The necessarily technical character of papers dealing with tests of mentality and their statistical analysis, and also, perhaps, the vehemence and acerbity with which distinguished eugenists used to assail one another, have made most medical men a little shy of the subject. But, in these days, when politicians are suggesting that environmental reforms will suffice to create a sound nation, it is imperative for the profession as a whole to take a serious interest in the problem of social inefficiency. Such studies as those of Professor Berry and Mr. Porteus, which display the essential points at issue with a minimum of technical detail, are therefore timely.

THE FRENCH CONGRESS OF SURGERY.

THE French Congress of Surgery, which has been in a state of suspended animation since the outbreak of the war, held a well attended meeting in Paris from October 7th to 10th, under the presidency of Dr. Gabriel Maunoury of Chartres, brother of the famous general who won the battle of the Ourcq. The general secretary, Dr. J. L. Faure, in welcoming the foreign visitors, uttered a vigorous condemnation of the members belonging to enemy nations whose names would no longer appear in the lists of French societies. "We do not wish to see them again," he exclaimed; "we shall not see them. To be dishonoured it is enough that they are German." Lieut.-General C. H. Burtchaell, Director-General British Medical Service in France, thanked the medical corps of the French army for its care of the British wounded. Among the questions discussed was the treatment of remote results of nerve injuries by projectiles of war. The general feeling was in favour of free resection of the nerve stumps even at a late date; stress was laid on sufficiently prolonged after-treatment by electricity and mechano-therapy. Sencert of Nancy urged the employment of dead heteroplastic grafts when resection was not possible; he used the ends of the sciatic taken from still-born calves, preserved in alcohol, kept in sealed tubes and placed in sterilized water shortly before use. Dujarier said he had used homoplastic grafts with satisfactory results. Walther said he refreshed the divided nerve ends, resected the lateral neuromas, and tried to enucleate the central ones; he dwelt on the advantage of constantly keeping the nerve operated on in a bath of tepid physiological serum, and on the necessity, if the sutured or liberated nerve were enclosed in muscle, of placing it in non-vitalized muscular tissue, otherwise sclerosis would occur, and the nerve would be involved in the fibrous tisue. Mauclaire said he surrounded the freed nerve with a fenestrated sheet of india-rubber; when the ends of the injured nerve could not be brought together he bridged over the gap by fixing in it a portion of a neighbouring nerve trunk. The other subjects discussed were the extraction of projectiles from the chest cavity, the removal of splinters, and the repair of losses of bone substance.

THE ABORTIVE TREATMENT OF SYPHILIS.

IN a paper urging the necessity for legislative reforms Wassermann[1] deplores the ignorance still obtaining in Germany among the authorities, in the medical profession as well as among the general public, concerning syphilis. Few realize, he insists, the significance of the serological proof that 12 to 15 per cent. of the population of large towns are syphilitic, otherwise certain legislative measures would have been taken. He would have compulsory serological tests in every maternity hospital, and compulsory treatment for the mothers and infants giving a positive reaction. Prostitutes also should, in his opinion, be legally bound to submit to the Wassermann test from time to time. He holds that a complete cure can be effected in practically 100 per cent. of all cases if salvarsan treatment is instituted on the demonstration of spirochaetes, before Wassermann's reaction has become positive. When this phase is reached the spirochaetes have been deposited in the tissues, and a complete cure cannot be anticipated with certainty. Short as is the interval between the discovery of spirochaetes and the reaction of the patient's serum to the infection, the fate not only of the patient but of all his family may turn on the institution of treatment during it.

[1] *Zeit. für ärzt. Fortbildung*, No. 9, 1918.

THE FUTURE OF THE DISABLED MAN.

IN the second number of *Reveille*[1] the policy of including contributions of general literary merit is continued. Thus there is in the November issue a poem by Mr. Thomas Hardy, a story by Stacy Aumonier, a characteristic article by Mr. G. K. Chesterton, and an article by M. Brieux, the French dramatist, on our duty to blinded soldiers, which forms a link with other articles of a more technical character. Thus the Director-General A.M.S., describes what the War Office is doing; he states that, in view of the fact that it was clearly beyond the powers of the Ministry of Pensions, for lack of accommodation and a trained staff, to treat the cases requiring orthopaedic treatment, the War Office agreed to help the Ministry of Pensions, which undertook afterwards to maintain the necessary institutions and continue the treatment, and meanwhile to erect annexes at each military orthopaedic centre. These annexes, which remain under the surgical supervision of War Office expert surgeons attached to the centre receive pensioner cases residing in their neighbourhood who still require indoor treatment; out-patient treatment is given to all pensioners at all special or general military hospitals. The War Office has placed temporarily 300 beds in its orthopaedic centres at the disposal of the Pensions Ministry, and has released some 2,300 beds in civil hospitals. The position, however, is still far from satisfactory. The editor of *Reveille*, Mr. John Galsworthy, sounds a warning note in the most serious tone. He insists that pensions and monetary aid, though necessary, will not do what is wanted, for they will not stop the brooding and bitterness of the men who gave up their best energy in the prime of their youth. Occupation and the sense of usefulness alone will cure. The situation demands not only all our energy and co-operation now, but far sight into the future. He estimates that over 400,000 disabled men have already been discharged and that there are, perhaps, as many more to come. The question is whether so large a proportion of the men should be in this permanently disabled condition. It may seem a serious thing to say, but we believe that, had the Medical Department of the Pensions Ministry shown more foresight, a very considerable proportion of the crippled pensioners might have been cured or very greatly improved by efficient surgical treatment for their injuries, so that the work begun in the army could have been completed. The question, as Mr. Galsworthy says, is very serious, and a solution is urgently needed. Time is of the essence of the problem. The War Office offer is until the end of the war. In doing so much, it is really going outside its sphere, and it is clearly the duty of the Pensions Ministry to proceed at once to organize an adequate system.

[1] H.M. Stationery Office. November, 1918. Price 2s. 6d.

EPSOM COLLEGE.

As each year draws to a close it is our privilege to call the attention of readers of this Journal to the claims upon their benevolence of the Royal Medical Foundation of Epsom College. This institution was founded sixty-five years ago by John Propert, a medical man. Its object is twofold—to provide pensions for medical men and their widows in reduced circumstances and an education of the highest class for their sons. The College Foundation, on which fifty boys are educated and maintained free of cost, is restricted to the necessitous sons of medical men, while outside the Foundation sons of medical men are received on lower terms than other boys. Hence the College always contains a nucleus of doctors' sons, and more, perhaps, than any other public school, it is a recruiting ground for the medical profession. Founded and supported largely by the efforts of medical men, Epsom College is thus directly linked up with each generation of practitioners. In order to maintain the fifty Foundation scholarships and the fifty pensions to aged and impecunious medical men or their widows, an annual sum of not less than £4,500 has to be raised by subscriptions. This task has proved more and more difficult during the past four years, and the problem of ways and means has been a source of ever-increasing anxiety to the Council. The work has nevertheless been carried on throughout this period of financial stress, and we feel sure that the appeal by the Treasurer, Sir Henry Morris, which we print at page 641, will not be made in vain. Increased subscriptions and new contributors are urgently needed.

Sir George Newman's report of the Medical Department of the Board of Education for the year 1917 has just been published, and contains a record of the work carried out under the Board by the School Medical Service in England and Wales. The Ministry of Health Bill, introduced during the last days of the late Parliament, does not propose to transfer this function from the Board of Education to the new Ministry; but Sir George Newman indicates in his preface that the School Medical Service, while it must remain an integral part of the public system of education, could be effectively correlated with other health services. The report is of much interest, and we propose to consider it in an early issue of the Journal.

MEDICAL REPRESENTATION IN PARLIAMENT.

The candidates nominated on December 4th for the forthcoming parliamentary election include the following medical men. We shall be glad to receive any corrections or additions to the list.

Basingstoke, Hants: Sir Auckland Geddes, M.D.
Bishop Auckland, Durham: Dr. V. H. Rutherford.
Cheltenham: Dr. Richard Davies.
Clackmannan and Eastern [Stirling]: Major W. A. Chapple.
Derby, High Peak: Dr. Clifford Brookes.
Farnworth, Lancashire: Sir Thomas Flitcroft.
Leeds, North: Major A. C. Farquharson.
Liverpool—Wavertree: Dr. Nathan Raw.
Llandaff and Barry: Dr. C. F. G. Sixsmith.
Llanelly, Carmarthen: Dr. J. H. Williams.
London—Battersea: Colonel Arthur Lynch.
Bermondsey: Dr. A. Salter.
Shoreditch: Dr. Christopher Addison.
Southwark (Central): Captain L. Haden Guest, M.C.
Whitechapel and St. George's: Dr. R. Ambrose.
Mansfield: Dr. N. M. Tarachand.
Mayo, North: Dr. J. Crowley.
Meath, North: Dr. P. J. Cusack.
Morpeth, Middlesbrough: Major T. M. Allison; Captain Gerald D. Newton.
Moseley, Birmingham: Dr. R. Dunstan.
University (Queen's) of Belfast: Sir W. Whitla, M.D.
University of Dublin: Sir R. H. Woods, M.Ch.
University of London: Major-General Sir Wilmot Herringham.
Universities of Scotland: Sir W. Watson Cheyne, Bt.; Dr. P. Macdonald; Professor W. R. Smith.
Wallasey (Cheshire): Dr. B. V. P. McDonald.
Western Isles (Scotland): Dr. Donald Murray.
Wexford, South: Dr. James Ryan.
Willesden, West: Dr. J. S. Crone.
Wolverhampton, Bilston: Lieut.-Colonel J. Kynaston.

THE WAR.

A WET NIGHT.

BY
Sir ANDREW MACPHAIL,
CANADIAN ARMY MEDICAL CORPS.

The Ambulance had rested.* We were now on our way from the Salient to the Somme. The news that kept drifting up from the south was not cheerful. In Belgium for the past year we had lived in a permanent line; in commodious cellars; in caves well roofed with timber, earth, and brick; under sound canvas or metal that defied the rain from above.

But now the talk was of "field service," in an area devastated of any habitation above the ground, and little chance of shelter, except a refuge in the warm heart of the earth. A blanket and a ground sheet was the most that was promised; but the first lesson of war is, that nothing is ever as bad—or as good—as it looks. So there was a cheerful cynicism in all minds.

We were out upon the world again, and orders were to live in the open, to sleep in the fields unless rain fell, rather than in houses unless it were fine. These two sets of alternatives are not identical. It is much easier to go out when it is fine than to discover a place of shelter when it rains. Someone else has always found it first.

Three things to the civilian are a marvel: how the soldier under all conditions of weather keeps well, clean, comfortable. A soldier falls into one of three categories: well, dead, in hospital. As armies do not carry their sick or their dead with them all soldiers on the march are well. A soldier is clean if his buttons, belt, and boots are clean, and he himself shaven; his clothes are already of the earth earthy. It is his business to appear comfortable, even if he is not so. For the men it is all very simple, because a man may bear upon his back as much as he likes for his protection against the weather, for his health, comfort, and cleanliness. He may carry a bundle of firewood and a kitchen stove if he has sufficient resolution.

For the officer things are not made so easy. He is allowed a weight of thirty-five pounds only on the baggage wagon, and very little on his person because he rides a horse. If he is not merciful to his beast, the transport officer is a most merciful man, and will see that the horses are not imposed upon.

And yet it is a delicate way of travelling, with everything under one's hand for any emergency of weather. Within certain limits each officer devises for himself a certain plan of equipment which will suffice for a campaign. He and his horse are one, and between them they carry all that is needful for the composite creature no matter what may befall.

The bridle is in part a head-stall, which is really a halter with a white rope attached to the ring and thrown over the horse's neck in form of a loop. The bits and reins can be removed, and the horse secured by the rope. On the left of the saddle is a picketing peg; beneath the saddle a blanket made fast by a surcingle; on the right is a shoe-case, a canvas bucket, and nose-bag in which 10 lb. of corn are carried. And so the horse is provided for.

For one's self: in the left saddle-bag is a leathern roll containing all toilet articles—razors, strop, soap, nail-brush, toothbrush, corkscrew, tin-opener, cigarette papers, scissors, nail file. A hair brush, towel, and steel mirror completes. In the right saddle-bag are a pair of socks, a metal flask of rum, which is useful for many purposes, a tin of tobacco, and small cleaning tools. Attached by a strap is a mess-tin with knife, fork, spoon, and silver cup. Upon the cantle is carried a ground sheet rolled, and in fine weather a waterproof cloak with hood, all ample

* British Medical Journal, September 1st, 1917, p. 298.

enough to cover horse as well as man when it rains. The officer carries slung a water-bottle, gas-mask, and haversack. The haversack holds food for twenty-four hours, one book, writing material, maps, and many small luxuries.

If one wears a greatcoat, it matters little if the baggage wagon goes astray, although it does carry a sleeping-bag in which are blankets, ground sheet, extra uniform, underclothing, shirts, collars, and sleeping suit. There is also a dunnage bag for boots, sweater, brushes, candles, and various odds and ends. With this equipment wet or dry does not matter.

It was a sullen morning in early September. At sunrise there had been a gleam of light and an ominous rainbow in the west. The poplars shivered in the garden, and showed the pale under sides of their leaves. The pigs in the midden were carrying straw in their mouths, and the geese squawked with apprehension of discomfort. The area was alive with movement. The various units which compose a division were pouring out of their camps upon the little roads, and proceeding to the junction with a main thoroughfare, ready to take their places in the procession as it passed. An ambulance marches at the rear of its own brigade; in all brigades the order is the same, and position can be taken in the dark.

Within an hour the whole division was in motion upon converging lines; bands playing, columns sliding slowly along the landscape, but all details of the movement obscured by a mist which arose from the river. A division is at a standstill for a longer time than it moves. A train is crossing the front. A bridge is choked. A lorry breaks down. A team baulks at a hill. The movement begins again, but the tale of miles is small when night comes.

But these pauses are not tiresome. One dismounts and lies by the road. There are late poppies to look at, which soften the lips of the serpiginous trenches, patches of purple kale, golden stacks of grain, roots in yellow piles covered with pale wilted leaves. And in all fields are the indomitable French women at work, without parade and without self-consciousness. In one field is a stout old woman following a harrow, drawn by a large grey horse and a small brown mule—so slowly. She used a stick to help herself over the heavy ground, and the big horse would not turn at the end of the field until he had rested for such time as he thought proper. Three younger women followed picking up the weeds in their aprons. Another woman was swinging a two-handed scythe, and her daughter-in-law, as one might surmise, was lifting the pitiful swath, and binding it into sheaves. Yet more were gathering potatoes. An old man was sowing seed broadcast, and a still older man with a child was holding some brown cows by strings so that they might crop the rich grass which grew rank in the ditches. None lifted their heads to see the passing show. The sight was too common, and all were quite heedless of the wet, which now began to fall in a drifting drizzle.

We descended the high ground to the river bottom, if one may describe as a river a rush-fringed watercourse overgrown with willows and dank osiers. We crossed a narrow bridge, and ascended the high ground towards a mass of trees that showed green upon the upland and on the map, and bore the mysterious name of Eperlecques.

Once more the sun came out, and after interminable travelling we found our bivouac in a level field at the southern border of the forest. It was void of buildings of any kind. There was, however, in the near distance a château, but it was already appropriated by a battalion of infantry. In this field we unhooked, unharnessed, watered, and fed the horses, and put them to their lines with the forage which we carried.

An ambulance is always in action. It picks up casualties on the march, and cares for them at the halts. Tents were pitched for the patients—a small marquee for operations, one for an orderly room, and one for the mess. By this time the cooks' fires were burning, and there was a neat repast for all. The sun still shone, but with a treacherous brilliance, and the afternoon was free.

To a Canadian, at least, this was a new kind of forest. In Canada a forest means a forest, a place of rocky desolation choked with undergrowth; raw cut areas with the slash lying ready for conflagration; or a region of blackened stumps over which the fire has already passed. But this forest of Eperlecques was a heavily wooded park with clear springs, and shady groves, and sunny hills. As one wandered in its depths one would not be surprised to meet a rough satyr or a faun with cloven heel. There was the hut of a charcoal-burner in a clump of branching sunproof elms, where according to the story books one might meet a friar with a lanthorn; or at the proper time see pert fairies and dapper elves keeping their "merry wakes and pastimes." Indeed, the young major, as we walked, was casting a practised eye to right and left, as if he might encounter the wily glance of a nymph.

The light faded with a sudden finality. It was time to think of camp and some shelter for the night. The horses were happy. The drivers were already resting under their wagons. The motor ambulances were converted into boudoirs for those who were entitled to use them. The men suspected from the morning rainbow, from the mist, and drizzle, and sudden bursts of sun, that there would be a wet night. Each pair of mates found two short-crotched sticks. They fastened them in the ground six feet apart. They laid a long stick in the crotches. They lashed their two ground sheets together with spun yarn, and laid the fabric for a roof, pinning down the edges to the ground with loops of yarn and splinters of wood. A slight ditch and drain completed the simple but secure habitation.

The rain yet kept off, and the officers manifested a fine unconcern. It was all a pretence. Each one had a design of his own, but it must be carried out with his own hands. In a field were stooks of rye in long sheaves. They might not be taken, they could not be bought. They would be rented for the night, so the owner allowed. He also added that "the glass was very bad."

In the corner of the wood was an immense tree, its trunk wreathed with ivy. The roots had heaved a mound upon the surface of the earth, which promised an escape for the waters which were about to fall. Upon this mound close against the tree the sheaves were laid in fours, with a space left into which a long low dog could bestow his sinuous length. The sleeping-bag was placed upon this mattress. Blankets were spread, and spare clothing formed a pillow against the prime log of the tree. Above the couch a ground sheet was stretched like a canopy from the saplings in the thicket, with a nice incline which would throw the water clear at the foot. Upon the tree were hung from a hook haversack, water-bottle, and such articles as could be hung in shelter of the roof.

Near at hand a stout stake was fastened from two small trees, and upon it the saddlery was placed with the dunnage bag laid lengthwise below, and over all was spread a ground sheet. The air was deadly still, and a candle end burned without a flicker to light the little woodland home.

A lovely bell from the tower of Eperlecques rang out seven o'clock. It was now dark in the woods, and the camp was soon asleep. This was the first time in a year that I had heard the night sounds of the country—the thud of an apple as it fell from the tree, a bird in distress, a small animal in its death agony, a fish leaping in the pond. From time beyond man's memory the path of the little creatures of the wood lay across the roots of this tree. There would be a patter of running feet, a pause at the unwonted obstruction, a quick-taken breath, a leap across, and a scamper into the woods again. These shy ones may really have been fairies at last.

In the still, heavy dark—a crash, not of guns but of thunder unfortunately, and the rain began to fall. A

first it fell softly, and gave a delicious sense of comfort which soon passed into sleep. It must have been some hours later that one awoke with the awful certainty that the worst had happened. The rain was descending upon the trees with a reverberating roar. The dog, with a sense that he had been betrayed by trusting to a human being, was nosing his wet way into the blankets. Inside, the water was everywhere. In such circumstances there is nothing to be done but to do nothing, to lie still. The water was already warm. If it could be warmed as fast as it came in, no harm would follow. It was better to be lying down wet and warm than standing up wet and cold.

But after several awful uncertain minutes the cold and water had the best of the controversy, and I extricated myself from the clammy chill. It was easy to guess what had happened. The fabric had slipped away from the tree, and the canopy, which was fast, discharged its waters, and flooded the bed through an obscure rent in the cover. All was not lost. Boots, breeches, jacket, and underclothing were dry beneath one's head. These were quickly put on; but to shave in the wet dark was a trial of courage. A candle does gutter.

I came on deck, as one might say. The level field was awash. The water overflowed the ditches, and stood within the tents, but the patients were yet secure upon their few inches of stretcher. There was smoke from the cooks' stoves. Where there is smoke there is fire, and where there is fire there is hot tea. Also there is sweetness, for that is the one standard which an army cook sets for himself. The men stood by and wished for the day, as if the day could make any difference.

Presently the wagons from the divisional train arrived, and dumped the forage and rations for the next twenty-four hours. In the lot were two cases with designation marks, which quite accurately disclosed the nature of the contents. They were consigned to a private owner, but the owner was sought out with one consent. Although the contents were little amongst such a multitude, there was two ounces apiece, and all confessed that they were warmed at least down to the waist.

Daylight came. Patients were evacuated by motor ambulance to the nearest stationary hospital. Tents were struck. Equipment was packed and loaded. The camp was cleaned of the last shred of débris. The horses were put to the wagons, and the transport dragged out of the mire on to the hard road, where it was left in column of route with the horses feeding at the splinter-bars ready for a clean start. Riding horses were saddled and the saddlery protected with a ground sheet. The infantry battalion was also afoot. Under a portico their band was playing the "Peer Gynt" suite. The bandmaster was more musician than soldier, and the "Death of Aasa" did not add to the cheerfulness of the morning.

The division was again upon the move, every day a little further towards the Somme. It was now nine o'clock. All the rain in the sky had fallen, but it took twelve hours to come down. The blackness vanished, and solid billowy clouds went before the wind. French children came into the roads, and cried, "Vous allez partir?" In an awed whisper one inquired further, "Pour les tranchées?" They had heard where their fathers were. We were going to them, and the children longed and wondered.

The sun came out, and a hot steam went up from the earth. The harness was rubbed dry by sheer force of arm, and horses were groomed until they shone. Chains were polished; brass wheel caps were brightened, and the ends of steel axles were made into shining discs. Wagons were rubbed with a greasy sock and covers drawn tight. The men shook the wrinkles out of their jackets, and with stick and brush made their buttons to shine.

Kits were adjusted. A whistle sounded. The Sergeant-Major said, "All correct, Sir." The Colonel said, "Field Ambulance—column of route—by the right—quick march." We were on the road again. At the first turning the G.O.C. went by. "You are very well turned out this morning," he said. He knew it had been a wet night. We had had our reward. He said we were well turned out.

INDIA AND THE WAR.

WE published last week an abstract of the dispatch of the Commander-in-Chief in India on the work done there during the first three years of war. An official memorandum has now been issued on the forces contributed by India and on the number of casualties.

At the outbreak of war the strength of the army in India was: British, 76,953; Indian, 239,561. The number of Indian ranks recruited during the war up to September 30th, 1918, was 1,161,789, of which 757,747 were combatants and the rest non-combatants.

The number of officers and men sent on service overseas from India up to September 30th, 1918, was:

	British.	Indian.
To France	18,934	131,496
To East Africa	5,403	46,936
To Mesopotamia	167,551	588,717
To Egypt	19,166	116,159
To Gallipoli	60	4,428
To Salonica	66	4,938
To Aden	7,386	20,243
To Persian Gulf	968	29,457
	219,534	953,374
Total	1,172,908	

British ranks sent from India to England totalled 42,430, making with the above a grand total of 1,215,338.

The total Indian casualties in the same period were 101,439; in Mesopotamia there were 14,742 killed and 30,589 wounded. The next largest casualties were incurred in France, where 6,900 were killed and 16,380 wounded.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

SURGEON SUBLIEUTENANT E. A. PEARSON, R.N.V.R.

Surgeon Sublieutenant Eugene A. Pearson, R.N.V.R., was reported as having died on service, in the casualty list published on November 29th.

ARMY.

Killed in Action.

CAPTAIN R. F. COPLAND, R.A.M.C.

Captain Robert Ferguson Copland, R.A.M.C., who was returned as missing on March 21st last, has now been reported by the Geneva Red Cross as killed on that date aged 25. He was the youngest son of the late James Copland of Cromarty, and was educated at Aberdeen where he graduated M.B. and Ch.B. in 1915, after which he took a temporary commission as lieutenant in the R.A.M.C., and was promoted to captain after a year's service.

Died on Service.

LIEUT.-COLONEL M. HOLMES, N.Z.M.C.

Lieut.-Colonel Mathew Holmes, New Zealand Medical Corps, died at Wellington, New Zealand, on November 15th. He was the son of James S. Holmes of Wellington, and was educated at Edinburgh, where he graduated M.B. and Ch.B. in 1902 and M.D. in 1908, also taking the diploma of F.R.C.S.Edin. in 1905. After acting as resident medical officer of St. Mary's Hospital for Women and Children, Manchester, he returned to New Zealand, and went into practice at Wellington, where he was honorary physician to the Wellington Hospital. He joined the New Zealand forces early in the war, and was promoted to lieutenant-colonel in 1916.

LIEUT.-COLONEL J. M. REID, R.A.M.C. (RET.).

Lieut.-Colonel James More Reid, R.A.M.C. (retired), died suddenly on November 18th, aged 62. He was born at Newton Stewart, Wigtownshire, on January 29th, 1856, and educated at Edinburgh, where he graduated M.B. and C.M. in 1878, and M.D. in 1880. Entering the R.A.M.C. as surgeon on February 2nd, 1884, he became surgeon-major on February 2nd, 1896, and lieut.-colonel on February 2nd, 1904, retiring on January 29th, 1911. He served in the Tirah campaign in the North-West Frontier of India in 1897-98, and in the third China war of 1900, receiving the medals, and rejoined for service in the present war on January 17th 1915. He was a Fellow of the Royal Geographical Society and of the Institute of Public Health.

MAJOR H. W. SYKES, R.A.M.C.

Major Harold Widdington Sykes, R.A.M.C., was reported as having died on service, in the casualty list published on November 29th. He was educated at the University of Durham College of Medicine, and graduated M.B. and B.S.Durh. in 1909, and M.D. in 1912. He then went to South Africa, and, after acting as resident medical superintendent of Grey's Hospital, Pietermaritzburg, Natal, took up the post of assistant medical officer to the sick fund of the Randfontein Estates, Transvaal. He took a temporary commission as lieutenant in the R.A.M.C. on June 7th, 1915, and was promoted to captain after a year's service, and subsequently to major.

CAPTAIN (ACTING MAJOR) W. S. MACDONNELL, C.A.M.C.

Captain (acting Major) Winfred Smyth Macdonnell, C.A.M.C., whose death on service on November 15th we announced last week, was born at Port Hood, Nova Scotia, on December 25th, 1888. He graduated in medicine at Dalhousie University, Halifax, N.S., in 1910. He first served for seven months in the Royal Navy, and then with the R.A.M.C. at the front, in France, for one year. He was appointed to the C.A.M.C. in August, 1916, and after serving with the Duchess of Connaught's Hospital, Taplow, he was transferred to the London area. He was subsequently transferred to the D.G M.S. branch, and was appointed D.A.D.M.S. in January, 1918.

CAPTAIN B. W. CHERRETT, E.A.M.S.

Captain Bertram Walter Cherrett, East African Medical Service, died of pneumonia after influenza at Nairobi on November 4th. He was educated at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1906, and the D.P.H. in 1909, also graduating M.B. and B.S.Lond., with honours, in 1907. After acting as assistant medical officer of Plaistow Hospital, he entered the East African Medical Service, in which he held the post of health officer at Nairobi, the capital of British East Africa. He received the temporary rank of captain on August 29th, 1914.

CAPTAIN E. D. KEANE, R.A.M.C.

Captain Edward Dawson Keane, R.A.M.C., was reported as having died on service, in the casualty list published on November 25th. He was educated at Aberdeen, where he graduated M.B. and Ch.B. in 1901, after which he went into practice at Banff, where he held the appointments of assistant visiting physician to the County Asylum, Banff, assistant surgeon to the Chalmers Hospital, Banff, and assistant physician to Banff Dispensary. Subsequently he removed to London, and was in practice in North Kensington when he took a temporary commission as lieutenant in the R.A.M.C. early in 1917. He was promoted to captain after a year's service.

CAPTAIN C. R. LISTER, A.A.M.C.

Captain C. R. Lister, Australian Army Medical Corps, was reported as having died on service, in the casualty list published on November 29th.

CAPTAIN S. W. MATTHEWS, R.A.M.C.

Captain Samuel Wauchope Matthews, R.A.M.C., was reported as having died on service, in the casualty list published on November 29th. He graduated M.B., B.Ch., and B.A.O. of the National University of Ireland in 1917, took a temporary commission in the R.A.M.C. in September, 1917, and was promoted to captain after a year's service.

CAPTAIN G. L. MAULE, R.A.M.C.(S.R.).

Captain Geoffrey Lamb Maule, R.A.M.C.(S.R.), died of pneumonia at Baghdad on November 15th, aged 26. He was the only son of the late Dr. William Maule of Birkdale, Southport, and was educated at Shrewsbury, at Christ's College, Cambridge, where he graduated B.A., and at Manchester University. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1916. After acting as house-surgeon of Manchester Royal Infirmary, he joined the Special Reserve of the R.A.M.C.

CAPTAIN M. W. H. MILES, R.A.M.C.(S.R.).

Captain Maurice William Holt Miles, R.A.M.C.(S.R.), died at Streatham of pneumonia after influenza, on November 25th, aged 25. He was the son of Mr. W. Miles, and was educated at Merchant Taylors School, and at St. Thomas's Hospital, where he gained a scholarship. He joined the army at the beginning of the war, and served as a combatant in France, Egypt, Gallipoli, and India, after which he was released from service to complete his medical studies. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in January, 1917, and subsequently graduated M.B.Lond. After serving as house-physician at St. Thomas's, he took a commission as lieutenant in the Special Reserve of the R.A.M.C., but was invalided on account of ill health soon after his promotion to captain.

Wounded.

Major F. Henderson, M.C., R.A.M.C. (temporary).
Major H. D. Lane, M.C., R.A.M.C.(T.F.).
Captain W. G. Mackenzie, R.A.M.C.(T.F.).

Previously Reported Wounded, now not Wounded.

Captain W. G. Shakespeare, R.A.M.C.

DEATHS AMONG SONS OF MEDICAL MEN.

Cox, James Nicol, late Royal Engineers, son of the late Dr. D. Charles Cox of Annan, died in hospital, November 24th.

Irving, Alfred, Second Lieutenant 15th Sikhs, youngest son of Dr. M. H. C. Irving of the British Guiana Medical Service, whose death in action in Mesopotamia, on October 26th, we announced in our last issue, was born in Demerara in April, 1899. He was educated at Epsom College, where he was captain of the cricket XI in 1916. He entered the Indian army in May, 1917, and was gazetted to the 15th Sikhs, but was attached to the 14th Sikhs at the time of his death.

Kirton, Ralph Imray, Lieutenant Royal Air Force, elder son of Dr. C. I. Kirton of Honor Oak, London, S.E., died at the Cambridge Hospital, Aldershot, on November 22nd, as the result of a flying accident, aged 23.

O'Malley, Coman Geoffrey, Lance-Corporal, Royal Dublin Fusiliers, fifth son of Dr. D. J. O'Malley, J.P., of Glennamaddy, co. Galway, killed in action in France on October 14th. He was brother of Captain V. D. O'Malley, M.C., Royal Dublin Fusiliers, Captain Cusack K. O'Malley, M.C., R.A.M.C., Lieutenant C. O'Malley, A.S.C., M.T., and of Lieutenant Wilfrid O'Malley, Connaught Rangers.

Smith, W. Robson, Captain R.F.A., son of Dr. James Smith of Newcastle-on-Tyne, died on November 19th at the New Zealand Stationary Hospital, St. Omer, France, from pneumonia. He was a student of medicine and dentistry at the Durham College of Medicine, Newcastle-on-Tyne. He joined the ranks when war broke out, went to France in April, 1915, and was commissioned in December, 1915. He returned to France in April, 1916, and had been on active service since then in France and Flanders.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

HONOURS.

THE names of the following medical officers appear in a long list of awards for conspicuous gallantry and devotion to duty, published in a special Supplement to the *London Gazette*, dated December 2nd:

D.S.O.

Captain David William McKechnie, No. 6 Field Ambulance, C.A.M.C.

While preparing an advanced dressing station in a village it was subjected to an intense bombardment, but he remained at his post dressing the wounded, and refused to take underground cover.

Major Stanley Graham Ross, M.C., 6th Field Ambulance, C.A.M.C.

On three successive days this officer was in charge of collecting posts and advanced dressing stations. He accompanied the stretcher-bearers in the advance to see that proper touch was maintained. His coolness and disregard of danger under heavy fire had an excellent effect on the work of the bearer parties.

Colonel Robert Mills Simpson, C.A.M.C., A.D.M.S., 2nd Canadian Division.

He established, often under heavy fire, his advanced dressing stations and collecting posts, and personally superintended the evacuation of the wounded. When a sudden attack resulted in the capture of a village, he went up under fire and personally dressed the wounds of his men on the field, evacuating all by the evening. His tireless work undoubtedly saved many lives.

Second Bar to Military Cross.

Temporary Captain (acting Major) Robert Masson Greig, M.C., 63rd Field Ambulance, R.A.M.C.

He displayed conspicuous gallantry and great devotion to duty in attending to the wounded and superintending their evacuation from advanced positions. To his admirable organization and self-sacrificing endurance, working without rest or sleep, many wounded men owe their lives, and his coolness and courage when leading his stretcher-bearers forward under heavy fire were admirable. (M.C. gazetted November 25th, 1916. First bar gazetted September 16th, 1918.)

Bar to Military Cross.

Captain (acting Major) Charles Stuart Peddie Black, M.C., 1/2nd (Low.) Field Ambulance, R.A.M.C.(T.F.).

During an advance under heavy shell and machine-gun fire he reconnoitred the forward roads and brought up a tent subdivision and set up an advanced dressing station. By his energy and courage he was enabled to clear all wounded from the aid posts and evacuate them to the main dressing station. (M.C. gazetted October 29th, 1915.)

Captain Christopher Matheson Finlayson, M.C., C.A.M.C., attached 20th Canadian Battalion, 1st Contingent Ontario Regiment.

As medical officer of the battalion during an attack he did excellent work in attending to several wounded men under shell and machine-gun fire. His coolness and attention to duty, regardless of personal safety, were an inspiration to all. (M.C. gazetted September 24th, 1918.)

Captain (acting Major) William Murdoch, M.C., R.A.M.C. (S.R.), attached 52nd Field Ambulance.

During three days' severe fighting he was untiring in his efforts, working night and day with his stretcher-bearers, attending to wounded in forward positions and evacuating them rapidly through difficult country. He was severely wounded in the arm by direct machine-gun fire, but insisted on carrying on his duties until he received a direct order from the commanding officer to report to a dressing station. His courage under fire and great endurance were splendid examples to every one. (M.C. gazetted January 1st, 1918.)

Temporary Captain Patrick Joseph O'Reilly, M.C., R.A.M.C., attached 7th Battalion East York Regiment.

He attended to the wounded under heavy fire during several days' operations. He advanced with the leading troops in an attack, and brought in many wounded men from in front of the lines. He set an inspiring example of coolness and skill. (M.C. gazetted November 14th, 1916.)

Temporary Captain (acting Major) John McLean Pinkerton, M.C., R.A.M.C., 13th Field Ambulance.

He went forward with some bearer squads to bring in wounded which bearers had been prevented from getting to by machine-gun fire. He ultimately succeeded in bringing in some of the wounded, though fired on every time he was observed. Throughout the operations he showed the greatest zeal and devotion to duty. He was finally severely wounded. (M.C. gazetted November 25th, 1916.)

Temporary Captain (acting Major) William Kenneth Armstrong Richards, M.C., R.A.M.C., attached 55th Field Ambulance.

He followed up an attack under very heavy fire, and organized and carried out the evacuation of the wounded during several days' operations with the greatest courage and skill. (M.C. gazetted June 4th, 1917.)

Military Cross.

Temporary Captain Patrick Augustine Ardagh, N.Z.M.C., attached 1st Battalion, Auckland Regiment.

He worked in the open all day under very trying conditions, and at times under heavy fire. Hearing that the personnel of another battalion's aid post had been blown out, he at once went to the place and worked for several hours under shell fire until he had cleared the wounded. By his energy and disregard for danger many lives were saved.

Captain Charles Francis Atkinson, C.A.M.C., attached 44th Battalion, Manitoba Regiment.

During an attack, finding that heavy enemy machine-gun fire prevented any carrying back of casualties, he went forward and personally dressed a large number of casualties. Later, under heavy fire, he organized special parties and cleared all wounded effectually. He saved a number of lives.

Captain George Raymond Baby, No. 4 Field Ambulance, C.A.M.C.

He brought up a stretcher bearer section immediately behind the infantry advance and collected the wounded. He was continuously exposed to every kind of hostile fire. His energy in searching for the wounded resulted in his area of the battlefield being thoroughly and quickly cleared.

Captain James Everett Barry, C.A.M.C., attached 2nd Battalion Eastern Ontario Regiment.

During a successful attack this officer tended the wounded among the attacking companies under intense fire, dressing their wounds and directing them to the aid post. He searched the field for wounded under full observation, and frequently under heavy fire of the enemy. He must have saved the lives of many men who were lying in exposed positions.

Temporary Captain Ellis Campbell Bowden, R.A.M.C., attached 2nd Battalion London Regiment.

He attended to wounded men under a very intense fire from machine guns, in daylight, and helped to carry many wounded into safety in full view of the enemy. His unceasing efforts and his self-sacrificing disregard of danger saved many lives, and were the admiration of all who saw him.

Temporary Captain (acting Major) John Burke, 130th Field Ambulance, R.A.M.C.

During ten days' severe fighting he was unremitting in his devotion to duty, tending the wounded, and selecting, often in the middle of the night, suitable places for his dressing stations. He displayed conspicuous courage and coolness under fire, and his initiative and endurance evoked the admiration of all who were with him.

Captain Alexander Rae Campbell, attached 5th Brigade, Canadian Field Artillery.

When the battery came into action under heavy machine-gun fire a number of men were wounded. This officer collected and carried them to trenches, where he dressed their wounds, constantly under heavy fire. He set a fine example to the men round him at the time.

Temporary Captain Alfred Mackenzie Clark, R.A.M.C., attached 1st Battalion, Northumberland Fusiliers.

Hearing that there were several wounded men lying out that could not be collected until nightfall, owing to snipers and machine-gun fire, he went himself and dressed them in the shell holes where they lay. On this, as on other occasions, he showed a total disregard for his personal safety when the welfare of the wounded was at stake.

Captain (acting Major) Frederick Clarence Clarke, 12th Field Ambulance, C.A.M.C.

Under heavy shelling he collected four severely wounded men, dressed them, placed them under cover, and remained with them until help arrived, when he got all four away safely. For three days of heavy fighting his cheerfulness and devotion to duty inspired all under him.

Captain William James Dowling, R.A.M.C.(S.R.), attached 3rd Battalion, M.G. Corps.

He tended and evacuated wounded of his own and other units under very heavy shell and machine-gun fire. Later he did excellent work in charge of the bearer section of a field ambulance. By his zeal and fearless conduct he saved many lives.

Captain Harry Dunlop, C.A.M.C., attached 102nd Battalion, 2nd Central Ontario Regiment.

This officer followed closed behind the attack, and attended to the wounded under heavy machine-gun fire. He was untiring in his efforts to care for and evacuate the wounded, and undoubtedly saved many lives.

Captain Joseph Culloden Eagar, C.A.M.C., attached 78th Battalion Manitoba Regiment.

Throughout the fighting this officer worked unceasingly ministering to the wounded, frequently under heavy shelling and machine-gun fire. He went without food or sleep, and when wounded refused to leave until his station was cleared.

Temporary Captain Orie Elgin Finch, R.A.M.C., attached 2nd Battalion King's Own Scottish Borderers.

He moved his aid post forward to close behind the front line, under very heavy machine-gun fire. Here he worked unceasingly in a trench for thirty-six hours bandaging and attending to wounded; and it was due to his fearless conduct and splendid energy that all the wounded were attended to in a short time.

Captain (acting Major) Stanley Rider Gibbs, 2/2nd (Wessex) Field Ambulance, R.A.M.C.(T.F.).

He organized the finding and evacuation of one officer and four other ranks lying wounded in an advanced machine-gun post in front of our lines, and although the operation, which took several hours, was conducted under almost continuous machine-gun fire, he recovered them all.

Temporary Captain Basil Graves, R.A.M.C., attached 13th Battalion, Royal Fusiliers.

During an attack he dressed wounded in the open under difficult conditions, and frequently under machine-gun fire. Throughout the operation he encouraged the wounded by his cheerfulness and disregard of danger, and by his devotion to duty saved many lives.

Temporary Captain William Hamilton, R.A.M.C., attached 223rd Brigade, R.F.A.

During an advance he remained at the gun positions throughout the operations. Under heavy shelling he attended to wounded in exposed positions and was always cheerful under most trying circumstances. His courage and devotion to duty won him the admiration of all ranks.

Captain (acting Major) William James Hirst, 1st, attached 2/1st, South Midland Field Ambulance, R.A.M.C.(T.F.).

He organized the evacuation of wounded from a village during an enemy attack; he remained behind when the enemy advanced into the village and assisted in removing all the wounded, refusing to leave the village until the last man had been brought in. He has at all times shown great coolness and disregard of danger under heavy fire.

Temporary Captain Jeremiah Holland, R.A.M.C., attached 1st Battalion, Cheshire Regiment.

Under very heavy machine-gun and rifle fire he collected and evacuated wounded from a ridge. He showed utter disregard for personal safety, and by his zeal and energy set a splendid example to those under him and saved many lives.

Captain Bellenden Seymour Hutcheson, C.A.M.C., attached 75th Canadian Battalion, 1st Central Ontario Regiment.

Before the battalion reached its jumping-off position the enemy put down a heavy barrage and many casualties were sustained. This officer worked unceasingly in attending to and dressing the wounded under heavy fire in open ground. During the mopping up of a village he passed through the streets several times attending to the wounded. He also voluntary dressed nearly 100 enemy wounded who had been left behind.

Captain Thomas Ross Jagger, A.A.M.C., attached 21st Battalion Australian Infantry.

He carried on his work under heavy fire during two attacks, and attended to the wounded of his own and other units with utter disregard to danger. He set a splendid example of courage and self-sacrifice.

Temporary Lieutenant Edward Digby Kinsey, R.A.M.C., attached 1st Battalion Bedfordshire Regiment.

He remained in the open for over an hour when the battalion were incurring severe casualties from intense shelling, dressing the wounded and seeing that they were promptly carried into safety. His efforts resulted in the saving of many lives.

Temporary Captain Alexander Chester Lambert, R.A.M.C., attached 8th Battalion Royal Lancashire Regiment.

He repeatedly established aid posts during an attack and under very heavy shell and machine gun fire attended and evacuated wounded belonging to his own and other units. When a shell struck his aid post, killing assistants and slightly wounding himself, he remained at duty and refused to go down. Throughout the operations his conduct was admirable.

Temporary Captain Philip Whiteside MacLagan, R.A.M.C., attached 1st Battalion, Herts Regiment.

He continued to bind up wounded on a road under shell fire. He also showed great ability in getting wounded evacuated from the aid post; and generally showed great coolness and disregard of danger under fire throughout the operations.

Captain (acting Major) Edward Bertram Marsh, R.A.M.C.

During an advance he kept touch with the regimental medical officers' and bearer divisions under very adverse circumstances and heavy fire, and so co-ordinated the forward evacuation that the divisional front was cleared in the shortest possible time. His energy was remarkable throughout the operations.

Captain James Kilburn Mossman, No. 5 Field Ambulance, C.A.M.C.

For conspicuous gallantry and tireless energy in the execution of his duty. This officer was in charge of a section of stretcher-bearers, and rapidly organized the evacuation of the wounded. He followed close on the attacking infantry waves, and regardless of his own safety attended to the wounded. His zeal and judgement were a great example to the men.

Captain Finlay Munroe, C.A.M.C., attached 52nd Canadian Battalion Manitoba Regiment.

For conspicuous gallantry and devotion to duty in dressing and attending to wounded during a hostile barrage. This officer has always disregarded personal danger, and has undoubtedly saved many lives on the battlefield.

Captain (now Major) Sydney Michael O'Riordan, A.A.M.C., attached 13th Battalion Australian Infantry.

During the later stages of an advance, when the infantry were under heavy fire, he established his aid post in an advanced position and dealt very rapidly with the casualties. His initiative and coolness under heavy fire were an inspiration to all who came in contact with him.

Temporary Captain Andrew Finlay Readdie, 21st Field Ambulance, R.A.M.C. (Italy).

While supervising the evacuation of the wounded from the front line he heard that a medical officer in charge of stretcher-bearers had been killed. He at once proceeded to the spot through heavy enemy barrage and took charge of the bearers, and it was due to his prompt action that no delay resulted. He has consistently done good work.

Captain Loudon Corsan Reid, 12th Field Ambulance, C.A.M.C.

For several hours under heavy rifle and machine-gun fire he dressed and cleared wounded, and by his efforts saved many lives. He several times went forward to points of extreme danger to satisfy himself that all wounded had been cleared.

Temporary Captain John Joseph Reynolds, R.A.M.C., attached 15th Battalion, Hampshire Regiment.

He formed an advanced regimental aid post on the side of the road, thus shortening the stretcher-bearers' journeys. Eventually he was forced to evacuate this position owing to hostile fire. Later he dressed and attended to all the casualties of three battalions, though partially gassed himself. By his untiring energy he undoubtedly saved many lives.

Captain Francis Louis Trinca, A.A.M.C., attached 2nd A.L.H.R.

During an attack this officer, although suffering from fever, carried out his duties with great energy and total disregard of danger. Later he accompanied the troops in a counter-attack, attending to casualties in the open under fire, and setting a fine example of endurance.

Captain Frank Elliot Trenoweth True, A.A.M.C., attached 48th Battalion, Australian Infantry.

He moved forward with the assaulting troops under very heavy fire, established his aid post and organized his stretcher-bearers, and was the means of saving many of the wounded. He carried out his duties under heavy fire with great skill and courage.

Captain Albert Henderson Wallace, 13th Field Ambulance, C.A.M.C.

While in charge of five stretcher squads he followed a battalion into action and established collecting posts for the wounded directly behind the battalion. His courage and initiative enabled the wounded to be got out rapidly, thereby saving many lives.

Captain William Charles Walsh, 13th Field Ambulance, C.A.M.C.

With four squads of stretcher-bearers he followed the battalion into action and established collecting posts a few hundred yards behind the front line. He dressed and evacuated wounded under heavy shell fire, working all day and night in the open until all were carried off the field. He behaved splendidly.

Captain Ernest Harold Whelpley, C.A.M.C., attached Head Quarters, 3rd Brigade Canadian Garrison Artillery.

He at once went to a battery which was being heavily shelled, and as casualties occurred dressed their wounds and superintended their evacuation. He showed great coolness and devotion to duty.

Temporary Captain William Brockie Wilson, R.A.M.C., attached 1st Battalion Devon Regiment.

He treated the wounded of his own and other battalions; this involved passing backwards and forwards over shell-swept areas. Later he went forward with his stretcher-bearers and searched all the ground up to the front line. He showed splendid zeal and disregard of danger, and set a fine example to those under him.

FOREIGN DECORATIONS.

THE following medical officers are included in further lists of decorations and medals awarded by the Allied Powers for distinguished services rendered during the war:

The Emperor of Japan has conferred the *Order of the Sacred Treasure*, 2nd Class, upon Surgeon Rear Admiral Patrick B. Handyside, C.B., R.N.

The President of the French Republic has conferred the *Croix de Guerre* upon Major-General James Barnett Wilson, C.B., C.M.G., A.M.S., and Major (temporary Lieut.-Colonel) Hugh Allan Davidson, R.A.M.C.

The King of Italy has bestowed the decorations of Officer and Cavalier respectively of the *Order of the Crown of Italy* upon Lieut.-Colonel (acting Colonel) Henry Hewetson, R.A.M.C., and temporary Captain John Harold Peek, R.A.M.C. Captain (acting Major) Albert Edward Peel McConnell, M.C., R.A.M.C. (T.F.) receives the bronze *Medal for Military Valour*, and temporary Captain Andrew Finlay Readdie, R.A.M.C., the *Croce di Guerra*.

The King of the Belgians has conferred the honour of Chevalier of the *Ordre de Leopold* upon Captain Arthur Ruskin Cook of the Uganda Medical Service, and that of Officier of the *Ordre de la Couronne* upon Captain Eric Leigh Fyffe, R.A.M.C.

Correspondence.

EPSOM COLLEGE.

SIR,—It is again my duty, as treasurer of Epsom College, to make an earnest appeal for new subscriptions, in order that the council may be able to maintain undiminished the work of the Royal Medical Foundation attached to the College.

As your readers will recollect, this work consists of two branches—namely, pensions of £30 a year are given to fifty aged and impecunious medical men or their widows; and an education of the highest class at Epsom College is provided for fifty necessitous sons of medical men, who also receive gratuitously maintenance, clothing, and pocket money. In consequence of the numerous calls in connexion with the war, in addition to the increase of taxation and the general rise in prices, many annual subscriptions have been withdrawn, whilst others have been reduced in amount.

Applications for assistance are being received as a direct consequence of the war, and already the governors have elected as foundation scholars (1) the son of a medical officer who was killed in action on the *Good Hope* in 1914; and (2) the son of another medical officer who was killed in action in 1917. Furthermore, Salomons Entrance Scholarships of £50 a year have been awarded by the council: (1) to the son of a medical officer who was killed when the *Royal Edward* was torpedoed in 1915; and (2) to the son of another medical officer who lost his life when the *Arcadian* was torpedoed in 1917.

I earnestly appeal to those of your readers who already support the foundation to increase their contributions, at least for a few years, if possible; and I urge upon those who do not at present subscribe annually to do so. To the latter I wish especially to make this request, at a time when so many members of our profession, their widows or their orphans, are in need—and I beg of them to be so good as to respond sympathetically to this appeal at once. A sum of not less than £4,500 must be procured in annual contributions if the numbers of beneficiaries are to be maintained.—I am, etc.,

HENRY MORRIS,
Honorary Treasurer of Epsom College and its Royal Medical Foundation.

London, W., Nov. 29th.

BRITISH MEDICAL LITERATURE IN FOREIGN COUNTRIES.

SIR,—I have read Dr. Gade's letter,[1] of which you have kindly sent me a proof, with much interest.

As regards the circulation and sale of English scientific books, there is much truth in what you say in your editorial note that we are in a vicious circle. This question has been receiving the close attention of the Publishers' Association for a year or two past, and in consequence a departmental committee was appointed last year to investigate it. Their report has not yet been made public.

The German booksellers have hitherto enjoyed certain exceptional advantages.

1. For years before the war the German Government had pursued its peaceful penetration in adjoining countries

[1] BRITISH MEDICAL JOURNAL, November 30th, p. 618.

both by means of education—for German teachers and methods were established in Russia, Rumania, Scandinavia, etc.—and by business propaganda subsidized by Government.

2. Their geographical position gave them opportunities which we can never possess.

3. The English system of bookselling has always been based on outright sale, the German on "sale or return." To enter into the relative advantages of these two systems would be impossible in such a letter as this. It is sufficient to say that the sale or return system requires an elaborate organization for watching the credit and standing of individual firms, collecting debts, etc., which the Germans have on the Continent and we have not.

4. The Leipzig Annual Book Fair is dependent on this system, and has been a powerful means of circulating books in Northern Europe.

It is needless to say that the Germans have sedulously depreciated the value of English books among their customers.

I have in the past written to leading booksellers on the Continent offering to send single copies of my publications on sale or return, but have met with no response.

I doubt if any successful effort can be made without Government help. This has been refused in the past, but you may rest assured that every one of the points raised in Dr. Gade's letter is now being fully discussed by English publishers, and we have hopes of Government assistance.—I am, etc.,

JOHN MURRAY.

Albemarle Street,
London, W., Nov. 29th.

THE CURSE OF IMMOBILIZATION.

SIR,—Mr. Dowden's paper in your issue of November 23rd, 1918, emphasizes, in our opinion, a most important matter. There is, however, immobilization and immobilization—one applied with unremitting care and intelligence, and another applied ignorantly and coupled with neglect.

If "thousands of our soldiers have been more or less disabled for life simply and solely on account of prolonged immobilization of injured limbs," many more are now enjoying useful limbs who have to thank immobilization for their recovery. The mortality in fractured femurs at the Western front was much reduced by the early application of the Thomas splint. Many a knee-joint has been saved by immobilization after its cleansing at the casualty clearing station. The value of the cock-up splint in musculo-spiral paralysis and of plaster after excision of the hip is beyond dispute, and Mr. Dowden would be the first to immobilize a joint which showed signs of "flaring up." Furthermore, many of the excellent results obtained by our orthopaedic surgeons could not have resulted without immobilization. When one applies a blister in occipital neuralgia one discounts the pain in view of the resulting benefit. So after resection and suture of an ulnar nerve one discounts possible slightly limited extension of the elbow in view of the resulting restoration of function in the resected nerve. Splints and plaster rightly employed daily justify their use.

On the other hand, immobilization misapplied and coupled with neglectful after-treatment does untold harm. We are able to endorse the statements regarding unnecessary disablement through neglectful immobilization. Case after case has been admitted to our wards in which fibrous ankylosis has all but been established when the original disability was only a trivial one. Splints are unnatural, and should only be employed when this unfortunate means cannot be dispensed with. The good results obtained by Mr. Dowden in treatment of fractures by the "sling and movement" method led us to discard splints almost entirely in treatment of fractures of the upper extremity, and after a considerable experience we unhesitatingly affirm that not only is the functional result better by this method, but the time taken in attaining that result is greatly shorter than could be obtained by the use of splints. Intelligent movement, so far from hindering callus formation, promotes it.

We do not deny that by this method the alignment of union as shown in skiagrams may sometimes not compare well with the pretty picture which our splint surgeons show though in most cases even this leaves nothing to be desired, but we would wish that in the comparison of skiagrams the extent of joint movement were visualized.

With regard to fractures of the lower limb, splints are most frequently necessary, but they must be watched with unremitting attention lest stiffness and pressure sores result. There is no reason why with care and the personal supervision of the surgeon the fractured limb should not be raised from its bed, manual extension being used meanwhile and the knee moved carefully to its complete extent once every day; thus are periarticular adhesions and contractures prevented.

We hope the result of Mr. Dowden's timely paper will be to banish many splints from the wards of our hospitals and that it will help to promote the "reaction from this age of splints" which he predicts.—We are, etc.,

E. W. KIRK, M.B., F.R.C.S.E.,
WALTER MERCER, M.B., Ch.B.Edin.,
Captains R.A.M.C.

MOTOR HEAD-LIGHTS.

SIR,—The forecast by Mr. Massac Buist of permanent restrictions on head-lights of cars will come as a surprise to most country practitioners. He states that the Home Office has all the necessary information and data from experiments. If so, then these should be published at once for the motoring public to discuss and criticize; otherwise we may be hampered for years by some stupid regulation pushed through by a bureau of national "stick-in-the-muds" and "kill joys." Grandmotherly legislation on the lines of the twenty miles per hour limit, and the wretched system of police traps entailed thereby, has been the curse of motoring in these islands, whilst the method of taxation could only be described as Gilbertian. Once these regulations are made law, they are as unalterable as the laws of the Medes and Persians, yet the police, and those who administer justice so differently and indifferently, and who have to be prayed for in church every Sunday, may put the most outlandish construction upon them.

It was stated recently that a medical brother was fined for stopping his car and transacting business at his tailor's, the bench remarking that he would have been in order had it been his grocer's.

Now the present lighting restrictions have been a nightmare for four years to country doctors, and having done as much night riding as most, both on motor cars and motor cycles, I, for one, am quite satisfied that the less light the motorist has, and especially in the early hours of darkness, the more the danger increases for all road users.

Further, with any good pre-war system of head-lights, the danger for every one is at a minimum.

The so-called dazzling effects of powerful head-lights can easily be avoided by not looking directly at them, but the dazzling effect on a cyclist, on a narrow dark road, of an ordinary pair of bright cab side-lights, cannot be avoided at all, and whilst he knows that the motorist can see what he is doing (and feels safe on that account), he knows equally well that the cabdriver cannot, so why should legislation begin with the motorist?

The country practitioner wishes to have no accidents at all, and that is why he buys the best lighting set he can afford. If these were dangerous he would not use them, and he is quite capable of judging as a body, quite as capable as any Home Office.

If the attention of some influential body—for example, the Automobile Association—can be brought to bear vigorously on any proposed legislation with a view to the needs of country practitioners, who, as a rule, are driving on the worst of roads, the time spent on making this protest will be more than repaid.—I am, etc.,

FREDK. W. HOGARTH.

Morecambe, Nov. 28th.

THE PAST AND FUTURE OF THE CRUSADE AGAINST TUBERCULOSIS.

SIR,—With reference to Sir Malcolm Morris's paper in the BRITISH MEDICAL JOURNAL of November 16th, may I suggest that anaphylaxis may be responsible for tuberculosis "running in families"? Since the tuberculin reaction is thought to be an anaphylactic phenomenon, and since the state of anaphylaxis is transmissible by the mother, and possibly to some extent by the father, I would suggest that the parent becomes sensitized to the tubercle bacillus, as shown by a positive von Pirquet reaction—that is, has a tuberculous infection. This sensitization being trans-

mitted to the children renders them an easy victim to tuberculous infection, from which most people seem to have suffered at some period of their lives.—I am, etc.,

R. E. TOTTENHAM, M.D., M.R.C.P.I.,
Temporary Surgeon Lieutenant R.N.

Sheerness, Nov. 19th.

Obituary.

DR. JAMES MILLER of Weymouth died on November 9th, aged 43. His illness began on November 4th, and he was removed, in accordance with his request, to the Princess Christian Hospital, which he had faithfully served for sixteen years, and, despite all efforts, he died of influenza complicated by pneumonia on November 9th. He was born at Las Palmas, graduated M.B., Ch.B.Edin. in 1899, and, after serving as house-surgeon to the Gloucester Infirmary, joined Dr. Green of Weymouth. He was medical officer to the Princess Christian Hospital, honorary secretary to the West Dorset Division of the British Medical Association, and the representative of the profession upon the Dorset Insurance Committee. Six years ago he lost his wife—a blow from which he never wholly recovered. He leaves one daughter. The large assembly which attended the funeral indicated the great esteem in which he was held. The *Southern Times* of November 16th published the following tribute to his memory from Dr. J. Macpherson Lawrie, chairman and senior medical officer of the Princess Christian Hospital:

I have been closely associated with him for the last fifteen years as a fellow worker in the same hospital, and had constant opportunities of appreciating the unwearied zeal with which he devoted himself to his duties, his very high moral standard, and his beautiful and tender sympathy with all suffering. Since the death of his wife I believe he found his greatest happiness in the hospital, where he was held in the greatest esteem and affection. It is infinitely poorer by his death, and his colleagues mourn the loss of one whose friendly counsel they much valued, and whose high character won their respect and love. He has left to us a splendid example of a life consecrated to duty, and spent freely and nobly in the service of his fellow creatures.

DR. HUGH WIGHT ARBUCKLE of Thorne, Doncaster, died there on November 17th, aged 71. Three days earlier he had made a round of professional visits, and at night retired to rest without showing signs of the deadly coma in which he was found on the following morning. He was born at Kilmarnock in 1847. He studied at Glasgow and was awarded the G. Watson gold medal at Glasgow in 1867; he graduated M.B.Aberd. in 1869 and M.D. in 1871. Nearly fifty years ago he acquired a practice at Thorne and somewhat later was appointed medical officer to the Thorne workhouse and to several of the neighbouring parishes. In 1877 Dr. Arbuckle was appointed the medical officer of health for the Thorne Rural District, a position he held with much credit till his death. By dint of persevering evening study he had qualified for this position by obtaining the D.P.H.Camb. in 1890. He was a certifying surgeon under the Factory Acts. Dr. Arbuckle was pre-eminently the friend of the weak and poor, over whom he wielded a benign influence, and by them especially he will be much missed.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on November 23rd the following medical degrees were conferred:

M.D.—G. A. Smythe.
M.B., B.CH.—C. H. Vernon, *E. A. Green.
M.B.—*A. R. Jennings.

* Admitted by proxy.

UNIVERSITY OF LONDON.

PARLIAMENTARY ELECTION.

THE following candidates for the election of a parliamentary representative of the University of London were nominated on December 4th: Sir Philip Magnus, Bt., B.A., B.Sc., who has represented the University since 1906, and is now the Coalition candidate; Mr. Sidney Webb, LL.B., the Socialist and Labour candidate; Major-General Sir Wilmot Herringham, C.B., M.D., F.R.C.P.; Mr. C. Louis Nordon, and Mr. A. A. Sommerville. It is understood that each of the last three gentlemen is an Independent candidate. Mr. Nordon is by profession a solicitor, and Mr. Sommerville a representative of the teaching body.

Sir Richard Douglas Powell, in handing the nomination of Sir Phil p Magnus to the Vice-Chancellor, said that Sir Philip's wide parliamentary experience and efficient represention of the University for the last thirteen years rendered it unnecessary for him to make any further observation.

After receiving the nominations, together with the deposit of £150 on behalf of each candidate nominated, the Vice-Chancellor announced that the poll would be open from Monday, December 16th, to Friday, December 20th, inclusive, from 10 a.m. to 5 p.m. for civilian suffrages, and up to December 30th, at 10 a.m., for sailors and soldiers. All voting papers would have to be signed and witnessed.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—†M. Girgis, *†D. M. Howard, *T. T. Tiplady.
MEDICINE.—*†D. M. Howard, S. Robinson, *†S. H. Robinson, *G. E. Spero.
FORENSIC MEDICINE.—D. M. Howard, W. A. Jones, S. H. Robinson, C. de B. Thomson.
MIDWIFERY.—R. A. D. J. Bernhardt, J. Crawford, D. M. Howard, T. T. Tiplady, J. Yates.

* Section I. † Section II.

The diploma of the society has been granted to Messrs. M. Girgis and D. M. Howard.

Medical News.

MAJOR W. OWEN EVANS, R.A.M.C., has been placed on the Commission of Peace for the county of Glamorgan.

THE late Dr. Robert Saundby bequeathed his medical books, and £100 for the purchase of additional books, to the Medical Institute, Birmingham, and directed that his portrait in oils should be offered to the Birmingham University.

LIEUT.-GENERAL C. H. BURTCHAELL, C.B., C.M.G., Director-General Medical Services, France, Major-General James Thomson, C.B., A.M.S., and Major-General F. R. Newland, C.B., C.M.G., A.M.S., have been appointed Knights of Grace in the Order of the Hospital of St. John of Jerusalem.

CAPTAIN M. CULPIN, R.A.M.C., will give a course of eight lectures on psychoneuroses in peace and war in the clinical theatre of the London Hospital during December. The first will be delivered on December 9th. Members of the profession are invited to attend the lectures, which will be given at 5 p.m. on each day. Further particulars can be obtained from the dean of the medical school.

THE committee of the Elsie Inglis London Memorial Fund hopes to hand over the money raised for the endowment of a chair of medicine in the University of Belgrade on the day when the Serbian Government re-enters the capital. As the required sum of £12,000 is not yet complete, the treasurers, Lady Selborne and Miss Teresa Gosse, request that donations may be forwarded without delay to 66, Victoria Street, S.W.1.

THE British Red Cross Society has conferred Honorary Life Membership on Mr. John Hatton, director of the baths at Bath. Immediately after the outbreak of war the corporation placed the city's bathing establishment at the disposal of the Admiralty and the War Office, and over 28,000 treatments have been given to military patients and nearly 2,000 to discharged soldiers. Bath is thus carrying on its traditions. Votive altars still exist which were erected by Roman officers in gratitude for their cure. Many of the great soldiers of the Napoleonic wars went to Bath, and during and after the Crimean war the spa received many wounded and invalided officers.

THE Rev. Geoffrey O'Donoghue, chaplain of Bethlem Hospital, has discovered in a cartoon which used to hang in the hall of the Royal College of Surgeons of England, and is now in the corridor leading to the Common Room, what he believes to be the original studies for Holbein's famous picture of the grant by Henry VIII of the charter to the Barber Surgeons Company, now in possession of the Barbers Company. Through a window of Tudor design in the upper part of the picture are to be seen gables and steep roofs on the slope of the river-side, and two steeples, the one probably the wooden steeple of Old St. Paul's, and a square embattled tower, probably St. Augustine's. The picture was painted probably before 1550, and represents apparently the grant of 1540. The cartoon was purchased for the College in 1786.

THE Anglo-French Drug Company, Gamage Building, Holborn, E.C.1., has issued a desk memorandum calendar, with notes on the drugs they supply.

THE deans of the medical faculties of Paris and of Rome have exchanged congratulatory telegrams on the recent victories of the armies of the two countries.

THE next award of the Alvarenga prize of the College of Physicians of Philadelphia, value 250 dollars, will be made on July 14th, 1919, if an essay on any subject in medicine deemed worthy of the prize is received by the Secretary of the College on or before May 1st, 1919. The essay must be sent without signature, but accompanied by a motto.

ON Tuesday next Professor Bone, F.R.S., will give the Lady Priestley Memorial Lecture of the National Health Society at the Imperial College of Science and Technology, South Kensington. The subject is coal and health. The chair will be taken at 3.30 by Sir James Crichton-Browne. The classes established by the society for the training of women for work as sanitary inspector and health visitor have, we are informed, proved extremely successful, owing, we have no doubt, to the thoroughness with which the courses have been organized. The society has arranged two lectures by Dr. Truby King on the care of mother and child, including feeding. The second lecture will be given on Thursday next at the house of the society, 53, Berners Street, W.1, at 3.30 p.m.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

THE ORGANIZATION OF AMBULANCE WORK.

SIR JAMES CANTLIE, K.B.E., writes to draw attention to the magnificent work accomplished during the war by voluntary ambulance workers, who filled an important gap in the war machine. The first Voluntary Aid Detachment was formed in London in 1908, so that when war was declared it was possible to extend the work upon a basis already well founded. After undergoing training for their duties the voluntary workers came forward in their tens of thousands to offer their services. Sir James Cantlie suggests that the nation's appreciation of these services could best be shown by establishing centres throughout the country where ambulance work would be continued and perfected. This subject is not taught in the medical schools, and it can only be satisfactorily learnt in institutions technically equipped for the purpose. The College of Ambulance, 3, Vere Street, London, W.1., is at present the only school of the kind in the kingdom. Since its foundation in 1914, 25,000 people have been trained there.

A MEDICAL FRONT LINE CLUB.

LIEUT.-COLONEL J. F. DONEGAN, C.B., writes to say that he has been approached by many R.A.M.C. officers with regard to the formation of a club, with the suggested title of "The Front Line Club," to be confined to medical officers who have served in the present campaign as regimental or field ambulance medical officers. It is proposed that the club should hold an annual dinner, and a desire is expressed that the presidency should be offered to the present Director-General A.M.S., Lieut.-General Goodwin, who himself has been a field ambulance commander during this war. Membership on the terms outlined above would be extended to medical officers of the Royal Navy, officers of the Indian Medical Service and Dominion Medical Services, together with members of the medical profession who have served with combatant units. Expressions of opinion as to these proposals are invited from medical men, and may be addressed to Colonel J. F. Donegan, C.B., c.o. Holt and Co., 3, Whitehall Place, S.W.1.

TREATMENT OF INFLUENZA.

CAPTAIN L. BENSTED, R.A.M.C., writing on the use of opium in the initial stages of influenza, states that he has found the following treatment to be satisfactory: The patient is at once isolated and put to bed, well covered with blankets. He is given pulv. doveri gr. x to xv and two vegetable aperient pills (No. 13 army pill) or calomel. The patient generally has a good night's rest; the temperature is reduced by the free action of the skin and great relief from aches and pains ensues. The aperient prevents any nauseating effect of the opium. Dr. Leonard Williams, in his book *Minor Maladies*, mentions opium as almost a specific in influenza. Afterwards the patient is generally given a quinine mixture. Captain Bensted has seen only two relapses under this treatment, and both quickly subsided on the re-exhibition of the above treatment.

THE INCUBATION PERIOD OF INFLUENZA.

DR. C. HOWARD JACKMAN (Heworth Green, York) writes with reference to the paper by Drs. Peter Macdonald and J. C. Lyth (BRITISH MEDICAL JOURNAL, November 2nd, p. 488) to point out that the patients had been staying in an infected area before returning to York, and arrived in an infected area, and might therefore have contracted the disease before starting or after arrival.

*** With an epidemic disease so widespread as influenza fallacies of this type no doubt must usually exist, but the general trend of experience favours the conclusion that the usual incubation period of influenza is from forty-eight to seventy-two hours,

ALCOHOL AND GLYCERIN.

THE Ministry of Munitions gives notice that supplies of alcohol are now available for industrial purposes, and that manufacturers should be able to obtain their requirements from their usual suppliers without restriction, subject, of course, to the usual regulations of the Board of Customs and Excise. Methylated spirit is again available to the public. Glycerin should, in a few days, be purchasable in the ordinary way from chemists, stores, etc. Arrangements have been made which enable glycerin producers to supply substantial quantities for general use.

APPLICATION OF SOLID PARAFFIN.

THE special paraffin preparation called "ambrine," originally designed for the treatment of burns, and also useful in many other conditions, including chilblains, must be applied hot, and the manufacturers have recently put on the market an ingenious method. The ambrine is moulded into the shape of an ordinary candle, fixed together in groups of three. By lighting the wicks and holding the candles obliquely the melted ambrine drops on to the affected spot, and can be spread evenly over the surface with a soft brush.

ATROPINE POISONING IN OPHTHALMIC PRACTICE.

DR. H. M. DESAI writes: R. S., a boy aged 4, was brought to the Sunderland Eye Infirmary on June 17th, 1918, for refraction. Atropine sulphate solution, 1 per cent., was instilled into each eye three times, one drop every ten minutes. When the patient came to the dark room half an hour later I noticed that his face was flushed, skin dry, and both eyes red and watering. The mother said the child was asking for water every five minutes. I gave him 5 minims of liquor morphinae in a drachm of water. In about half an hour he felt quite all right, and I proceeded with refraction. This case, I believe, is interesting in view of the tendency to prescribe atropine drops for home use for children in almost every eye trouble.

THE BELL FUND.

DR. S. A. KINNIER WILSON asks us to acknowledge a donation of £3 3s. to the Dr. J. H. Bell Fund from Temporary Surgeon Paul C. Gibson, R.N. Subscriptions should be sent to Dr. Wilson at 14, Harley Street, London, W.1.

THE appointment of certifying factory surgeon at Kanturk (Cork) is vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.